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EVALUATION OF ADJUSTMENT TO BLINDNESS

by

EDWARD A. FITTING

American Foundation for the Blind
15 West 16th Street, New York 11, N. Y.

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DIVISION OF SERVICES FOR THE BLIND,
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MICHIGAN

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Foreword

The American Foundation for the Blind inaugurated its Research Fellowship program at the beginning of 1952, and shortly thereafter Mr. Edward Fitting was given the first of these awards. The amount of the fellowship was generously underwritten by the General Service Foundation of St. Paul, Minnesota.

One of the basic purposes of the Research Fellowship program is to promote an attitude of objectivity in dealing with problems of blindness, to inject fresh scientific air into the atmosphere of murky subjectiveness which has characterized a great deal of the thinking in the field.

It is clear that Mr. Fitting has carried out his project in a manner which exemplifies this truth-seeking attitude. He has emerged with a usable instrument which provides an objective measure of the attitudes of blind persons toward several aspects of living. Taken together, they provide an index of the individual's acceptance of blindness and of his readiness to take a constructive part in our society. It is therefore a most appropriate instrument to use in adjustment training centers, where blind persons are engaged in a process of readjustment.

It is hoped that these centers and other types of agencies will find the scale useful. Like all scientific measures, it is not perfect, but rather it approximates the truth. And because it was developed in a scientific manner, it affords us the opportunity to approximate the truth better and better. In honest straightforward fashion, Mr. Fitting describes, step by step, how the scale was developed. If there are weaknesses in the procedure or in the scale itself, they are out in the open, subject to correction. Therein lies the strength of the scientific road to truth, and it is hoped that the publication of this study, and others to follow, which have been outlined in the Survey which is No. 1 in this Research Series of publications, will facilitate our progress along this road.

Mr. Fitting is to be congratulated for the careful, painstaking job he has done. Away from the academic world during many

years of work in the rehabilitation of blind persons, he returned to Michigan State University to blend successfully the experience of those working years with scientific methodology. The American Foundation for the Blind is proud to publish his study as the first in its series of reports on Research Fellowship projects, and to have been associated in its development with the federal Office of Vocational Rehabilitation, The University of Michigan at Ann Arbor, Michigan State University at East Lansing, and The General Service Foundation of St. Paul, Minnesota.

M. Robert Barnett
Executive Director

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Acknowledgment

I wish to express my appreciation for the assistance provided to me by the many people concerned in making this project possible. Special recognition should be given to Dr. Wilma Donahue, currently Chairman of the Division of Gerontology, Institute for Human Adjustment, University of Michigan, Ann Arbor, Michigan, who was largely responsible for its inception. It was her responsibility to select the original research committee and to get the project under way. This committee included Dr. Alvin F. Zander, Director of the Research Center for Group Dynamics, Dr. Eugene H. Jacobson, Assistant Program Director, Survey Research Center, and Mr. Floyd C. Mann, Assistant Program Director, Survey Research Center, of the University of Michigan, and Dr. Frank Finch of the University of Illinois. Mr. Donald Dabelstein, Assistant Director of the Office of Vocational Rehabilitation was also a member of this original committee which was responsible for the development of the project throughout the initial period. Through the cooperation of the American Foundation for the Blind, the leadership of Dr. Nathaniel J. Raskin, its Director of Research Planning, was contributed; to him I wish especially to express appreciation for the assistance provided when I entered the project early in 1952. The assistance provided by Dr. Milton Rokeach, Department of Psychology at Michigan State College as the consulting psychologist in the project, was of inestimable value in developing the scale and later analyzing the research material.

The directors of the various agencies for the blind operating adjustment centers, as well as the staff providing adjustment training, were most cooperative in assisting me with the collection of the data on adjustment. I wish also to express appreciation to Dr. Emily Willerman at the Minneapolis Adjustment Center and Mr. John Parish at the Alabama Adjustment Center, who assumed full responsibility for collecting the data in their respective centers.

The cooperation and the guidance of the Graduate Committee of the Department of Education, Michigan State College, was greatly appreciated in view of the fact that their cooperation permitted me to use the research material for a doctoral dissertation. To Dr. Leonard J. Luker I wish to express appreciation especially for his cooperation as chairman of this Committee and for the additional time contributed in attending meetings of the research committee. Other members of the Graduate Committee included Dr. Cecil Millard, Dr. Harry Sundwall and Dr. Raymond Hatch. Dr. Ernest Harper of the Department of Social Work at Michigan State College represented the minor department of graduate study. Mr. Malcolm Henry of the Statistics Division of the Michigan State Department of Social Welfare was most helpful in contributing his time in assisting me with the statistical problems encountered in analyzing the research material.

Few projects of this nature are endowed with the variety of disciplines or obtain the excellence of leadership which I encountered in its development.

PART I

Introduction

Background of the Study

The rapid growth of adjustment centers for blind adults following World War II accentuated the need for instruments and methods which would be useful in evaluating adjustment to blindness. As much of the cost of adjustment training was borne by the Office of Vocational Rehabilitation of the federal government through the various state rehabilitation programs, that office was especially concerned with the development of techniques and devices which would assist personnel in such centers to determine whether their programs were effective in achieving the desired results. This led the Office of Vocational Rehabilitation in 1950 to draw up a contract with the Institute for Human Adjustment, University of Michigan in which the University, represented by Dr. Wilma Donahue, was assigned the responsibility of undertaking research to develop instruments which would be helpful in evaluating adjustment to blindness.

In an attempt to bring about a multi-disciplined approach to the problem of evaluating adjustment, an effort was made to secure representatives of various schools of thought on the committee described in the acknowledgement. Originally, it was planned to have the entire committee meet over a period of time to pool the thinking of its members and, thus, develop an instrument which would be effective in evaluating adjustment. As time passed, however, it was discovered that this approach was not effective as it appeared impossible to make plans when all committee members could devote their time exclusively to the proposed project. This led to the decision early in 1951 to employ a full-time worker as the most advantageous way of using the resources available in developing the project. The writer was invited to assume the responsibility of working full time on the project

late in the summer of 1951. In view of the fact that funds were not entirely adequate to meet the increased cost, the American Foundation for the Blind was invited to participate in the project by providing a research fellowship. The Foundation was also invited to appoint a representative to assist in planning the research program. The Foundation accepted the invitation, provided the fellowship and appointed Dr. Nathaniel Raskin, newly-appointed Director of Research Planning for the Foundation, to act as a member of the Committee. Permission was also secured from the Graduate School of Michigan State College to utilize the research materials for a doctoral dissertation. A committee was subsequently appointed by the Graduate School of Michigan State College to include members of the Departments of Education and Social Work. In an attempt to bring about a closer relationship between the original committee and the Graduate School of Michigan State College, Dr. Leonard Luker, Chairman of the Graduate Committee, was invited to join the former group.

History of Adjustment Training

The first civilian rehabilitation service in the United States became available after World War I subsequent to the passage of the National Rehabilitation Act of 1920. War casualties increased public consciousness of the need of such service, which resulted in the enactment of the law making this service possible. At about the same time the first known rehabilitation center was organized for blinded servicemen in England under the name of St. Dunstan's. A report is provided by the founder of this institution, Sir Arthur Pearson (28) in his book "Victory Over Blindness." A more recent report of this famous center is made by Sir Ian Fraser (20) in which he tells of the service provided to veterans in World War II in England. This institution appears to be the original adjustment training center and probably influenced the development of similar programs in this country following World War II. During the period of conflict, both the Army and Navy established rehabilitation centers for blinded servicemen. Reports of these programs were provided by Frampton (19) and Blackburn (6). The Army center at the Old Farms Convalescent Hospital in Avon, Connecticut apparently was the model for adjustment train-

ing centers for civilian blind which developed rapidly throughout the country following the end of World War II. The first of these centers was organized in North Carolina in 1945 and has been in continuous existence since that time. This initiated a movement which spread rapidly throughout the country. In 1949 the American Foundation for the Blind made a study of sixteen of these centers and provided a report in July of 1950 (1). This presented a composite picture of the training offered in adjustment centers at that particular time.

The following year the Office of Vocational Rehabilitation of the federal government made a study of nine selected adjustment centers in preparation for a conference of personnel concerned with such training. This included a description of nine adjustment centers (16) participating, as well as a collection of case histories of eleven successful and unsuccessful cases (15) compiled by various centers providing adjustment training.

A workshop of adjustment training center personnel was held in Mitchell, Indiana, in 1951 which was referred to as the Spring Mill Conference. The purpose of the workshop was recorded as being; "To bring about and set forth in a single document the best experience and thinking of personnel actively engaged in providing services to the blind through adjustment centers." (2).

Considerable interest developed about this time among professional personnel engaged in providing services to the disabled in the so-called rehabilitation centers. A number of articles were published in regard to such centers and on adjustment to blindness. The Office of Vocational Rehabilitation published a pamphlet in 1949 entitled "Adjustment and Pre-Vocational Training of the Blind." (14). Articles also appeared in the "Outlook for the Blind" describing the programs in a number of rehabilitation centers. These included an article by Stalnaker (38) on the West Virginia program, another by Redkey (34) on the Washington rehabilitation center, and Dunham (13) describing the Kansas program. An article by Thornton (39) also in the "Outlook" gave a comprehensive report on the approach of training which was identified as orientation and pre-vocational work and try-out experience for blind as provided through one of the Goodwill Industries. The proceedings of the Spring Mill Conference were

published by the American Foundation for the Blind in 1951 in a pamphlet entitled "Adjustment Centers for the Blind." (2).

Review of Literature

A review of literature in the field of work for the blind indicated that writings were predominantly either historical or autobiographical in nature. Although the latter dealt with the problem of adjustment, generally they were highly subjective. One of the first books to digress from this pattern was that by Cutsforth (11) entitled "The Blind in School and Society." When this was published in 1932, it was the subject of much controversy because of the caustic attack upon the established methods of education in schools for blind throughout this country. The work was pertinent to the present study in that an attempt was made by Cutsforth to analyze the problems encountered by blind individuals in making an adjustment to a society of sighted people. A book by Chevigny and Braverman (10), "The Adjustment of the Blind," was the first to include an evaluation of adjustment centers. Sections of this book emphasized problems which were psychological in nature and drew heavily upon Freudian concepts. The term "adjustment centers" was criticized, and a suggestion was made that these be identified as "re-training centers." Although somewhat critical of these centers, the authors pointed out that in North Carolina, where the first adjustment center was established, this state produced an outstanding record of job placement following the establishment of such a center.

Various studies on the adjustment of blind individuals have been carried out by Muhl (27), Brown (7, 8, 9), Sommers (36), Bauman (4, 5), Potter (30), Proctor (32), Reeder (33), Smith (37), Potts (31) and Wittkower and Davenport (40). These and other studies in the area are evaluated in the revised edition of Social Science Research Council Bulletin 55 (3), which deals with physical handicaps in general. The authors concluded that "very little systematic research on the social behavior and personality of the visually handicapped has been done, and much of what has been attempted has been caught in the snare of methodological difficulties. Practically all of the studies reported have been directed, on the one hand, toward discovery of behavioral regularities in group data that may be associated with impairment of sight and,

on the other hand, toward the clinical description of particular blind individuals. Concern with discovering the mediating variables between blindness as a physical fact and blindness as a source of behavior has been rare. Nevertheless, some general conclusions can be drawn:

1. The incidence of the visually disabled appears to be increasing in the United States.
2. Attitudes toward blindness as a condition are uniformly negative.
3. Public attitudes toward blind persons are not unfavorable, but covert attitudes are often perceived by the blind as hostile and derogatory.
4. Parents of blind children and persons who work with the blind not infrequently exhibit contradictory behavior resulting from a conflict in attitudes.
5. On personality inventories the blind more frequently than the seeing earn scores that fall in the "maladjusted" range. The possibility that this is an artifact of the standardization procedures has not been eliminated.
6. The evidence is clear that the social maturity of the blind child is retarded when measured on a scale designed for seeing children.
7. Mild visual impairments, except perhaps the traumatic loss of one eye, are probably not crucial for behavior.
8. Severe visual disability is not associated with severe personality disturbance in the overwhelming proportion of persons studied. Personality characteristics existing before incurring a visual disability appear to be important.
9. The presence of substantial individual differences among the visually handicapped has been confirmed. It has been demonstrated that many personality and adjustment patterns are possible for different individuals who have the same degree of defective vision.
10. Much of the evidence from research must be interpreted cautiously, and some of it must be rejected because of serious methodological inadequacies. These inadequacies are not inherent in research on problems of visual impairment, although many of them are not easy to remedy."

In another recent survey, Meyerson (24) evaluated general works on partial vision and blindness, personality studies of groups with partial vision, as well as totally blind groups, the research in "obstacle perception" or "facial vision", the social maturity of blind children and experimental investigations of various factors using blind populations.

In addition to these general surveys Potts (31) and Wittkower and Davenport (40) had advanced specific points of view in the area of adjustment to blindness.

Much of the research on individuals with other physical handicaps, such as deafness and orthopedic disorders, has a direct bearing on problems of blindness. An example of this is a study by Fishman (18) dealing with the self-concepts of individuals adjusting to leg prostheses.

Among general works on adjustment to physical handicaps is the book by Pintner, Eisenson and Stanton entitled "The Psychology of the Physically Handicapped" (29). The work quoted above by Barker, Wright, Meyerson and Gonick (3), "Adjustment to Physical Handicap and Illness" is one of the most comprehensive reviews of studies in the field of adjustment to physical disability.

Representative of a more specific point of view is an article by Miller (25) entitled "Psychiatric Aspects of Rehabilitation" which included a section on problems of rehabilitation and suggested areas of research in the field of blindness.

Detailed analysis of the material summarized in this section indicated frequent reference to three particular areas in evaluating adjustment to disability. The first was concerned with adjustment to the physical environment. This was frequently referred to as orientation. The second area centered around the problems of adjustment to the social environment and stressed those problems the individual encountered in getting along with his fellow men. The third area is concerned with psychological problems. The acquisition of a disability frequently results in emotional problems. These are reflected in certain attitudes which characterize the psychological adjustment of the disabled individual.

PART II

Construction of the Instrument

Analysis of the Problem

Adjustment training centers for the blind also recognized the same three problem areas observed in the review of the literature reported in the previous section and provided training in these areas.

The first of these areas of training was designed to permit blind persons to achieve skills to permit them to live with an optimum degree of independence. The emphasis in this training was in travel competence. The development of the so-called Hoover (22) technique of cane travel during World War II was largely responsible for this emphasis. The introduction of this technique resulted in considerable controversy. A review of the literature on adjustment training indicated that centers were generally conforming to the method suggested by Hoover. It was also found that centers had developed considerable competence in determining the level of trainees' ability in this area. In the report of the Spring Mill Conference (2) a detailed checklist was published which could be used by center personnel in determining clients' capabilities in the proper use of the cane. Somewhat later an instruction manual was published by the Industrial Home for the Blind (23) in Brooklyn, New York, which further systematized instruction in travel. Other training in areas of functional skill offered at centers included instructions designed to increase skill and independence in such areas as eating, care of clothing and personal hygiene problems. In these areas, centers had developed a variety of checklists, rating devices, and similar techniques to evaluate individual clients' level of adjustment. The unpublished material (16) compiled by the Office of Vocational Rehabilitation permitted a study of the methods of evaluation which were being practiced at the different centers at the time of this study. This permitted the con-

clusion that, at the time of the review, there were adequate methods of evaluation in this particular area.

The second area in which training was being provided was in social competence. The purpose here appeared to be that of giving the individual experience in group living with the hope that this would permit him to acquire skills which would allow him to get along better with all individuals with whom he came in contact. Methods of achieving this goal are somewhat more diversified than found in the area of functional skills. Also, it may be found that methods of evaluating progress in social adjustment were not as adequate as those encountered in the area of functional skill. Nevertheless, most centers had developed techniques which permitted evaluation of the individual's social adjustment. Undoubtedly it would be helpful to develop more objective techniques in the evaluation of social adjustment.

The third area of adjustment training was the one which appeared to present the greatest problem in evaluating level of adjustment. This may possibly be due to the fact that psychological adjustment cannot be as readily observed as functional skills and social competence. Professional personnel in the field of work for the blind will readily agree that it is important for the individual to develop acceptable attitudes toward problems which he encounters as the result of blindness if he is to achieve an over-all desirable level of adjustment. Efforts to bring about a modification of attitudes were approached in different centers through individual counseling, as well as through various forms of group and individual therapy programs. The methods of approach in this particular area appeared to be more varied than any other effort made by adjustment centers. Furthermore, a review of the evaluation techniques indicated that little had been done to date to develop a method of evaluating objectively clients' attitudes toward problems of blindness. It was decided, therefore, that a worthwhile contribution could be made to the program of adjustment training by developing techniques which would permit objective evaluations of attitudes of blind people toward problems frequently encountered as the result of their disability. With this in mind, an attempt was made in the present project to determine what particular problems of adjustment were frequently

encountered and to develop techniques which would permit objective evaluation.

Our concern in this study, therefore, was the blind individual in a sighted environment and the attitudes toward problems which he encounters. We may assume that adjustment in a desirable direction will reduce conflict and frustration, permit a greater feeling of security, and allow a more effective relationship of the individual to his environment. It is presumed that the individual's level of adjustment can be determined by obtaining an objective evaluation of his attitudes on problems of blindness. A review of the literature on evaluation of attitudes indicates that such evaluations are being done with increasing success, so we may conclude that such attitudes are measurable. The hypothesis presented in this study, therefore, is that established scientific procedures can be used in developing techniques which are both reliable and valid to measure attitudes toward problems of blindness.

Additional values might also accrue from such a study by providing a better understanding of the problems encountered by blind people. A scientific approach to the study of such problems should indicate additional need for further research. The study should also result in the accumulation of a body of knowledge about the problems of adjustment to blindness which should permit those who work with blind individuals to understand the problems better and, consequently, permit them to assist the disabled individual to make a better adjustment to his disability.

Points of Departure for the Present Research

Having delimited the present investigation to evaluation of attitudes toward problems of blindness, we were then confronted with the problem of formulating specific items to be employed in evaluating level of adjustment. Several approaches were available to aid and guide us in this task. Four sources were used in this phase of the study.

The first approach was through the review of literature, as reported in the previous section. This permitted the itemization of the most frequently encountered problems of blindness as observed by a variety of different specialists. If comparable problems

were reported by different experts in the field, then it might be presumed that these should be investigated.

The second approach was to go directly to a group of blind individuals in training and secure their responses to a number of simple questions relating to adjustment to blindness. The subjects interviewed in this phase of the study were a group of trainees at the Michigan Employment Institution for the Blind. Their responses to prepared questions were recorded verbatim. The questions required the blind trainees to state their opinions about the training situation, what they thought about sighted people with whom they came in contact, what their feelings were about the disability of blindness, and their attitude toward problems relating to employment. The material collected in this manner later provided an excellent source for construction of adjustment items.

The third way of determining common problem areas was through contact with the professional staff of the Michigan Division of Services for the Blind. The project was discussed with them and a request made that they cooperate by selecting problem cases with which they were currently concerned in providing rehabilitation services. They were asked to review these cases and list in summary form the problems that they observed in each case which appeared to be related to the individual's rehabilitation.

Finally, the fourth point of departure was in the investigator's own occupational experience, which included teaching at a school for blind, as well as working with adult blind in a rehabilitation program over a period of a number of years. Many of the adult blind in the present rehabilitation case load were previously known in the school situation a decade earlier; thus, providing an excellent opportunity to observe problems of adjustment encountered by blind individuals over an extended period of time.

In constructing the adjustment scale, these sources of information were most frequently utilized. Those problems which appeared in repeated instances were considered to be important enough to merit investigation.

Six Areas of Adjustment

On the basis of considerations discussed in the preceding section, we emerged with six areas of adjustment which were judged

to be most frequently encountered in the blind. In the final instrument designed to evaluate adjustment, these were identified as separate sub-scales. Identification of the areas and descriptions are as follows:

1. *Morale ("M" Sub-Scale).* This was the most general area which dealt with the individual's confidence in himself to cope with problems with which he might be confronted, the extent to which he possessed hope, aspiration and confidence in his ability to cope with these as they arose in the future. In reviewing literature on adjustment, we encountered the work by Rundquist and Sletto (35), who also investigated morale. A few of the items in their adjustment scale were employed in the present study as they appeared to sample the same problem area with which we were concerned.
2. *Outlook toward Sighted People ("S" Sub-Scale).* While the first section dealt largely with the individual's concept of self, this particular section dealt with his concept of others. An attempt was made here to evaluate the extent to which he possessed a wholesome outlook toward his relationship with sighted people, neither rejecting the fact that certain assistance was required nor becoming dependent upon sighted people to do things for him which he was capable of doing for himself.
3. *Outlook on Blindness ("B" Sub-Scale).* Although the entire scale dealt with attitudes of blind individuals, this section is focused more directly on the individual and his concept of himself as a blind person. An attempt was made here to evaluate the extent to which the client accepted his disability in a realistic manner, neither rejecting it as inconsequential nor succumbing to it as being totally incapacitating.
4. *Family Relationships ("F" Sub-Scale).* This dealt with the attitudes toward members of the family in the home situation. Although this again appeared to evaluate the blind person's relationship to sighted people, it focused more directly on problems encountered by him as a member in a primary group. An attempt was made here to evaluate the extent to which the individual was able to cope with attitudes of rejection, to resist domination and to assert himself as an equal in the group.
5. *Attitude toward Training ("T" Sub-Scale).* The degree of

success which might be anticipated in adjustment training would be directly related to the attitude the individual had toward the training situation. An attempt was made here to evaluate the degree to which the individual had a wholesome attitude toward training and the cooperation demonstrated in this situation. Some items relating to outlook toward education in general were included in this group. As the Rundquist and Sletto (35) study included a section on training, this source was used to a limited degree in writing items for this section.

6. *Occupational Outlook ("O" Sub-Scale).* The last part dealt with the individual's outlook toward employment. Here an attempt was made not only to evaluate the individual's concept of himself as an employee but also to determine what he expected in an employment situation in general. If the individual felt that certain concessions should be made to him because of his disability and that he should not be expected to meet the same standards as others, then it would be unlikely that he would make a successful adjustment in a situation in which he would be expected to compete with non-handicapped individuals. An evaluation of these attitudes would be especially important in making a prognosis on occupational adjustment.

The Adjustment Scale

Using the sources previously outlined, items purporting to measure adjustment were written for each of the six categories just defined. In constructing items for the adjustment scale, the following criteria were employed:

1. The statement should be in the blind person's own language.
2. The item should be specific in its content.
3. The intent of the item should not be too readily obvious.
4. The statement should touch on a recognized problem area.
5. Agreement or disagreement should delineate between good and poor adjustment.

Following this procedure, a number of items were written in the form of simple, direct statements. After considerable study, fifteen of the best items available were selected in each of the six areas. This resulted in the preliminary 90-item adjustment scale which appears as Table I immediately following this section.

TABLE I. (PART 1)
90-ITEM PRELIMINARY SCALE
"M" (Morale) Sub-Scale

Item No.	
1	A blind person has so many more problems than a sighted person that he is liable to get discouraged. D*
7	In spite of the complexities of everyday life, times are much better now than they were a hundred years ago. A**
13	It does not take long to get over feeling gloomy. A
***19	It's difficult for a person to think clearly these days. D
25	A person can plan his future so that everything will come out all right in the long run. A
***31	Life is just one worry after another in these times. D
***37	No one cares much what happens to you. D
43	Real friends are easy to find, even though you are down and out. A
***49	Life is just a series of disappointments. D
***55	In times like these, one is inclined to give up hope of getting ahead. D
61	No one cares much what happens to you when you are blind. D
67	In these times there are plenty of reasons to be worried about the future. D
***73	Most people are usually happiest during their childhood. D
79	Even though a person feels pretty low, he should be cheerful and optimistic at all times. D
***85	It is great to be living in these exciting times. A

*D—Disagreement indicates adjustment
**A—Agreement indicates adjustment
***Retained in final 42-item scale

TABLE I. (PART 2)
90-ITEM PRELIMINARY SCALE
"S" (Sighted) Sub-Scale

Item No.	
2	A blind person has to depend on sighted people for a number of things. A**
***8	A blind person would be better off if he chooses mainly sighted friends. D*
***14	There are altogether too many sighted people working in agencies serving the blind who do not know the problems of blind people. D
***20	Because they know each others' problems better, the blind can put their trust in other disabled people more than those not disabled. D
26	A blind person has to be especially careful or others are liable to take advantage of him. D
32	Very often sighted people act as though a blind person isn't all there. D
***38	It may be dangerous for a blind person to do something alone, but it is better than asking for help. D
***44	Most people who work with the blind are really interested in helping them. A
50	A good way for blind people to promote their cause is to band together and present a united front. D
56	One trouble with sighted people is that they are uncomfortable with you because you are blind. A
62	The best way to get along with sighted people is to more or less try to do what they expect. D
68	A blind person would be better off if he could find someone who could tell him how to solve his personal problems. D
***74	Most sighted people just pretend they like you. D
80	Sighted people who are paid to serve the blind all too frequently neglect their duties. D
***86	Sighted people expect the blind to do things that are impossible. D

*D—Disagreement indicates adjustment
**A—Agreement indicates adjustment
***Retained in final 42-item scale

TABLE I. (PART 3)
90-ITEM PRELIMINARY SCALE
"B" (Blindness) Sub-Scale

Item No.	
3	You can get along best if you don't think of yourself as a blind person. D*
***9	A person might as well accept the fact that blindness makes people pretty helpless. D
15	There is really nothing too wrong with a blind person begging. D
***21	Many people become blind as a kind of punishment for something they did. D
***27	When you are blind, you are constantly worried about what may happen to you. D
33	It is only natural for a blind person to feel insecure. A**
39	Only the blind can understand what it is like to be blind. D
45	There is really no point in living if you can't see. D
***51	It is only natural for blind people to do an awful lot of daydreaming. D
***57	With the progress being made by medical science, there is little doubt that most blindness will be curable in the near future. D
***63	There are things worse than being blind. A
***69	A blind person shouldn't have to meet the same standards as others. D
75	Blindness is more society's problem than the individual's problem. D
81	A blind person is better off by not having too many blind friends. D
87	A blind person should expect help, even though he can't make up his own mind. D

*D—Disagreement indicates adjustment
**A—Agreement indicates adjustment
***Retained in final 42-item scale

TABLE I. (PART 4)
90-ITEM PRELIMINARY SCALE
"F" (Family) Sub-Scale

Item No.	
***4	One trouble with many families is that they expect too much from a blind person. D*
10	A lot of blind people would be better off if their families didn't do so much for them. A**
16	A blind person's family will usually stick by him, even though he cannot find work. A
***22	A blind person cannot find as much understanding at home as he can find somewhere else. D
28	Most blind persons are better off discussing important things with members of their families. A
34	Home is the pleasantest place in the world for a blind person. A
40	Family ties are strengthened when one of the members becomes seriously disabled. A
***46	There are too many members of a blind person's family who are just too curious about one's personal affairs. D
***52	It is pretty hard for a blind person to keep a pleasant disposition at home. D
***58	One trouble that many blind people have is that they can't trust their families. D
64	A blind person can hardly be blamed for being nervous at home. D
70	The trouble with a blind person's family is that they try to dominate you too much. D
***76	It's all too true that a blind person's relatives don't like others to know that there is a blind person in the family. D
82	It is a lucky thing that a blind person's family can be trusted to treat him well. A
***88	Most people in the family act as though the blind person is a burden to them. D

*D—Disagreement indicates adjustment
**A—Agreement indicates adjustment
***Retained in final 42-item scale

TABLE I. (PART 5)
90-ITEM PRELIMINARY SCALE
"T" (Training) Sub-Scale

Item No.	
***5	Blind people are not getting good jobs because they are not getting good training. D*
11	If friends help you to go wherever you wish, there is no need to learn to travel alone. D
17	Most of our young blind people are getting more education than they need. D
***23	A good education is a great comfort to a blind person who is out of work. A**
29	Education is more valuable to a blind person than most people think. A
35	It is the well-trained man who advances more rapidly in business and industry. A
41	Our schools for the blind are doing an important job because they encourage blind people to think for themselves. A
***47	The more education a blind person has, the better he is able to enjoy life. A
***53	With proper training a blind person can do just about anything a sighted person can do. D
59	It will be nice to get back home when your training is finished so that you can just rest and do as you please. D
***65	Most of the training offered to the blind is useless in really helping them with their problems. D
***71	A lot of job training offered blind people is just a way of getting them to work for nothing. D
***77	A training center gives a blind person a chance to learn to be independent. A
83	When blind people are happly living the way they are, there is hardly any need to send them away for training. D
89	Most training for the blind is probably a waste of time. D

*D—Disagreement indicates adjustment
**A—Agreement indicates adjustment
***Retained in final 42-item scale

TABLE I. (PART 6)
90-ITEM PRELIMINARY SCALE
"O" (Occupational) Sub-Scale

Item No.	
***6	A blind person has to accept the fact that there are many jobs he simply cannot do. A**
12	Employers should keep their blind employees in lay-off periods because of the special difficulty they have in getting jobs. D*
***18	A blind person who has ability and is willing to work hard has a good chance of being successful. A
***24	In deciding production rates, employers should make considerable allowance for a person's handicap. D
30	One of the biggest troubles with unions is that they are not enough concerned with the problems of handicapped employees. D
36	Many more blind people could be working if job-placement men were more conscientious. D
42	The way modern production is set up, a blind person could do well on any kind of a job. D
48	If you are blind, there isn't much use trying to get a job yourself because they won't give you a chance anyway. D
54	You just can't expect a blind person to do a job the same way a sighted person would. D
60	Statistics show that blind people have a much lower accident rate than others. D
***66	Even though you aren't highly skilled, you can do just as well if you really want to. D
***72	Employers have a way of expecting a blind person to do things that aren't required of others. D
***78	It's more important for a blind person to have pull than to have real ability. D
84	It takes more time to teach a blind person to do a job than a sighted person. A
***90	Because they have such a tough time getting to work, employers should overlook tardiness of blind employees. D

*D—Disagreement indicates adjustment
**A—Agreement indicates adjustment
***Retained in final 42-item scale

The Validating Instruments

Any experimental design in a project of this nature must include techniques to be used in validation. This necessitates the employment of an external criterion. One of the most common methods employed is to use similar instruments as an independent criterion against which the experimental instrument can be validated. At the time of the present study one comparable instrument had been designed to evaluate adjustment to blindness. Prior to the inception of the project an instrument by Bauman (4) entitled "Emotional Factors Inventory" was published. It sampled many of the same areas which are under consideration in this project but did not appear to cover attitudes toward training.

Even though the employment of other instruments as an external criterion for validation is a common one, it is generally accepted that the judgment of a group of individuals who are skilled in the field of investigation, is more acceptable. With this in mind, it was decided to secure instructor ratings as a criterion against which the adjustment scale could be validated. A five-point scale was developed covering the two major areas of training; that is, functional skill and general adjustment. One of the items under the section of functional skill is related to social adjustment. An instruction sheet was also written which provided a brief statement on each of the six areas previously described. In this, instructors were requested to consider only the characteristics described in the instruction sheet and to evaluate the individual only in relation to the definitions provided. The instructors' ratings were then converted into numerical value to be correlated with scores obtained on the adjustment scale. A copy of the two-section rating scale and the instruction sheet used with it may be found in Table II immediately following this section.

TABLE II (a)

RATING SCALE TO EVALUATE LEVEL OF ADJUSTMENT TO PROBLEMS OF BLINDNESS

Name	*Weeks of Training Received*				
	Poor	*Below Average*	*Average*	*Above Average*	*Superior*
1. Indoor orientation					
2. Travel ability					
3. Ability to manage eating problems					
4. Ability to manage dressing problems					
5. Ability to manage personal hygiene problems					
6. Ability to manage problem of social relations					
7. *General Adjustment*					
a. Level of morale					
b. Outlook on blindness					
c. Outlook toward sighted					
d. Family relationships					
e. Outlook toward training					
f. Occupational outlook					

TABLE II (b)
INSTRUCTIONS FOR USE OF RATING SCALE

Consider client's ability in relation to all other clients you have known. Normal distribution should permit about 50% to be classified as average, 20% above average, 20% below average, 5% poor, and 5% superior. The following areas should be considered:

1. Indoor orientation—The degree of skill and independence in getting around indoors. Skill in visualizing room lay-out and avoiding collisions with objects; ability to negotiate stairs and freedom from groping.
2. Travel ability—The degree of skill and independence in travel including adequate use of the cane. Degree of skill and independence exercised in getting about in the community.
3. Ability to manage eating problems—The extent of skill and independence in managing table service, caring for own needs in eating, acceptability of eating standards as related to posture and etiquette.
4. Ability to manage dressing problems—The extent of skill and independence exercised in caring for own needs in dressing. Skill and independence in selecting clothing for appropriateness. Cleanliness in clothing care.
5. Ability to manage personal hygiene problems—The degree of skill and independence in caring for personal hygiene such as shaving or use of cosmetics. Degree of skill and independence exercised in other matters relating to personal hygiene.
6. Ability to manage problems of social relations—The degree of skill in getting along with other people. Extent of acceptance by others and satisfaction to self in such contacts.
7. General adjustment will be rated in relation to six subheads to permit more precise evaluation.
   a. Level of morale—The extent to which client possesses hope, aspiration and confidence in his ability to cope with the future.
   b. Outlook on blindness—The extent to which the client accepts his disability in a realistic manner, neither rejecting it as inconsequental nor succumbing to it as being totally incapacitating.
   c. Outlook toward sighted people—The extent to which client possesses a wholesome outlook toward his relationship with sighted people, neither rejecting the fact that certain assistance is required nor becoming dependent upon sighted people to do things for him which he is capable of doing for himself.
   d. Family relationships—The extent to which the client is able to cope adequately with attitudes of rejection, to resist domination and to assert himself as an equal with as little antagonism as possible.
   e. Attitude toward training—The extent to which the client has a wholesome attitude toward training, and cooperation with those providing training.
   f. Occupational outlook—The extent to which client has a realistic and wholesome attitude toward employment.

PART III

Preliminary Studies

At Michigan State College

The first step in refining the adjustment scale by using an outside group was at Michigan State College with thirty-five graduate students in a course on personality diagnosis. The group was made up largely of school administrators and other individuals concerned with the education of children. After being informed of the purpose of the project, one half of the group assumed the role of well-adjusted individuals while the second half assumed the role of poorly-adjusted individuals. They responded to each of the items on the 90-item scale by writing either plus, if they agreed with the statement, or minus if they disagreed. On the basis of analysis of responses made under these conditions, various revisions of the items were made in the interest of reducing ambiguity and increasing the clarity of the items.

At Michigan School for the Blind

Our next step was to administer the scale to a group of blind individuals. The preliminary scale was administered to the high school population of forty-five students at the Michigan School for the Blind. This group ranged in grade from nine to twelve with minimum age of thirteen and maximum of twenty. There were nineteen females and twenty-six males. The vision range included individuals who were totally blind to those who could use ordinary means of writing. About two-thirds of the group were able to write their replies by use of pencil and paper while the remainder used Braille. They were instructed to write plus if they agreed with the statement and minus if they disagreed. Unfortunately, the group was tested in a room smaller than desirable,

which resulted in some confusion and may, in turn, have affected the validity of the scores obtained.

As the rating scale was not completed at this point, each teacher was provided with a list of names of all students to whom the scale was being administered with the request that he select one-fourth of the group whom they believed were well adjusted according to the definition supplied to them and one-fourth of the group whom they believed to be poorly adjusted. Adjustment rating scores were assigned to each of the forty-five subjects according to the number of times they were adjudged to be either well adjusted or poorly adjusted. This provided the external criterion against which it was possible to validate the findings obtained by use of the preliminary adjustment scale.

Reliability was computed on the ninety-item preliminary adjustment scale with the adolescent group by comparing the scores obtained on the odd-numbered items with those obtained on the even-numbered items. The coefficient of correlation was found to be .51. After correction by the Spearman-Brown formula, the reliability was .68.

The adjustment scores obtained by use of the experimental scale were found to correlate .25 with the adjustment ratings provided by the teachers. The validity of the adjustment scale under these specific conditions was, therefore, somewhat low.

An item analysis was made, comparing the responses of the eleven individuals rated highest in adjustment with the eleven individuals rated lowest. An item could be considered promising if a greater per cent of the well-adjusted group answered it in the appropriate direction than the poorly-adjusted group. Fifty-three of the ninety items were found to discriminate favorably between the two groups.

The second analysis was undertaken in which the upper and lower quarter was determined on the basis of the adjustment score rather than the adjustment rating. Sixty-nine of the items discriminated favorably between these groups. Although these item analyses gave us some insight into the nature of the scale as a whole, it was considered desirable to conduct further preliminary studies with adult blind groups before selecting the items to be used in the final adjustment scale.

At Michigan Employment Institution for the Blind and Industrial Home for the Blind in New York

Two institutions for adult blind were selected in which to try out the preliminary adjustment scale. One was the Industrial Home for the Blind in Brooklyn, New York; the other the Michigan Employment Institution for the Blind in Saginaw, Michigan. The method employed in collecting data in these centers was first, to select subjects considered to be either well-adjusted or poorly-adjusted, and then to administer the scale to these groups. This was accomplished by having a limited number of supervisors select individuals who they believed could be classified as either well-adjusted or poorly-adjusted. Subjects were selected with the aid of the definitions of adjustments supplied to them on the instruction sheet used with the rating scale.

In the New York study, conducted under the supervision of Dr. Nathaniel Raskin of the American Foundation for the Blind, fifteen poorly-adjusted and eleven well-adjusted individuals were selected from a total sample of approximately one hundred seventy clients. The rating scale was not used, however, with this sample.

In the Michigan agency, two supervisory staff members collaborated in selecting from a total of approximately seventy subjects thirteen individuals considered to be well-adjusted and thirteen considered to be poorly-adjusted. One rating was obtained on each subject to whom the adjustment scale was administered.

The technique of administering the scale with these groups was as follows: A small plywood tray was designed with three compartments sufficiently large to hold 3″ x 5″ cards. These were given to each subject with a set of cards consecutively numbered from one to ninety and placed in the central section of the tray. After each tenth card a piece of sandpaper was inserted so that the blind individual would have a tactual check of whether or not he had turned over the cards in the appropriate order. Basically, the technique for administering tests in this manner was previously developed by Potter and described in a paper by him in the 1947 conference at the University of Michigan (12). In administering the scale, the blind subjects were instructed to pick up the top card in the central section as each item was read and place it in

the right side of the tray if they agreed with the item or the left side of the tray if they disagreed. This method was considered advantageous for two reasons: First, it was believed that individuals would respond more objectively to items if it was not necessary for them to make a verbal or written statement. Second, this technique greatly facilitated the method of administering, as well as scoring, the responses.

In order to put the subjects at ease in responding to the scale, it was identified as an opinion survey about problems relating to blindness.

The data thus obtained were analyzed in a comparable manner to the adolescent sample. With the twenty-six cases in Saginaw the corrected odd-even reliability was .60. With the twenty-six cases from Brooklyn, the corrected reliability was .64. This is comparable to the corrected reliability of .68 obtained from the adolescent group as previously reported.

The data compiled with the Saginaw sample included adjustment and skill ratings on the five-point scale. The score obtained on the adjustment scale was then correlated with the rating score. With the use of the twenty-six cases in the Saginaw group a validity coefficient of .36 was obtained. This is somewhat higher than the validity of .25 obtained with the adolescent group. The difference may have been due to the fact that the conditions for administering the scale were better with the adult group and furthermore, that, instead of having eighteen teachers applying ratings, there were only two supervisors with this adult sample.

An item analysis was completed on the data obtained with the blind adults on a comparable basis to the analysis with the adolescent sample. The one difference was that the entire adult blind group from both Saginaw and New York were divided into two extreme groups, which provided us with twenty-eight subjects identified as poorly-adjusted and twenty-three as well-adjusted. The per cent of the group answering the item in the desired direction was then computed. To be of use the item should be answered appropriately by a greater per cent of the well-adjusted group than the poorly-adjusted group. In this study sixty-six of the ninety items were answered in the desired direction by a greater per cent of individuals classified as well-adjusted.

On the basis of these findings, it was decided to include approximately one-half of the ninety items in the preliminary scale in the final scale. It appeared desirable to include the same number of items in each of the sub-scales. In keeping with this consideration, the seven most discriminating items in each of the sub-scales were selected for inclusion in the final adjustment scale. The items selected for the final scale are listed under Table III. The table appears in six parts, each part including the items selected for one sub-scale. This table also indicates the extent of discrimination between the poorly-adjusted and well-adjusted group.

In an attempt to secure some further indication as to what might be anticipated with the use of this forty-two-item scale, the responses on these selected items were re-scored for the adult sample. The odd-even reliability was found to be .83 after correction by the Spearman-Brown formula. The correlation of the adjustment score with supervisors' ratings provided a validity of .55. These data suggested that the scale had now been sufficiently refined from the standpoint of reliability and validity to warrant its use with persons for whom the test was originally intended; namely, those undergoing training at adjustment centers.

TABLE III. (PART 1)
MOST DISCRIMINATING ITEMS
"M" (Morale) Sub-Scale

Item No.	*Item*	*Per Cent "Adjusted" Responses*		*Diff. of %*
		Poorly Adjusted	*Well Adjusted*	
19	It's difficult for a person to think clearly these days. D*	31	51	20
31	Life is just one worry after another in these times. D	35	59	24
37	No one cares much what happens to you. D	60	73	13
49	Life is just a series of disappointments. D	53	86	33
55	In times like these, one is inclined to give up hope of getting ahead. D	38	86	48
73	Most people are usually happiest during their childhood. D	17	38	21
85	It's great to be living in these exciting times. A**	78	91	13

*D—Disagreement indicates adjustment
**A—Agreement indicates adjustment

TABLE III. (PART 2)
MOST DISCRIMINATING ITEMS
"S" (Sighted) Sub-Scale

Item No.	*Item*	*Per Cent "Adjusted" Responses*		*Diff. of %*
		Poorly Adjusted	*Well Adjusted*	
8	A blind person would be better off if he chose mainly sighted friends. D*	82	91	9
14	There are altogether too many sighted people working in agencies serving the blind who do not know the problems of blindness. D	17	30	13
20	Because they know each other's problems better, the blind can put their trust in other disabled people more than those not disabled. D	21	73	52
38	It may be dangerous for a blind person to do something alone, but it's better than asking for help. D	38	73	35
44	Most people who work with the blind are really interested in helping them. A**	70	86	16
74	Most sighted people just pretend they like you. D	60	91	31
86	Sighted people expect the blind person to do things that are impossible. D	56	91	35

*D—Disagreement indicates adjustment
**A—Agreement indicates adjustment

TABLE III. (PART 3)
MOST DISCRIMINATING ITEMS
"B" (Blind) Sub-Scale

Item No.	*Item*	*Per Cent "Adjusted" Responses*		*Diff. of %*
		Poorly Adjusted	*Well Adjusted*	
9	A person might as well accept the fact that blindness makes people pretty helpless. D*	56	86	30
21	Many people become blind as a kind of punishment for something they did. D	78	91	13
27	When you are blind you are constantly worried about what may happen to you. D	38	64	26
51	It is only natural for blind people to do an awful lot of daydreaming. D	49	73	24
57	With the progress being made by medical science, there is little doubt that most blindness will be curable in the near future. D	42	59	17
63	There are things worse than being blind. A**	82	95	13
69	A blind person shouldn't have to meet the same standards as others. D	53	78	25

*D—Disagreement indicates adjustment
**A—Agreement indicates adjustment

TABLE III. (PART 4)
MOST DISCRIMINATING ITEMS
"F" (Family) Sub-Scale

Item No.	*Item*	*Per Cent "Adjusted" Responses*		*Diff. of %*
		Poorly Adjusted	*Well Adjusted*	
4	One trouble with many families is that they expect too much from the blind person. D*	45	82	37
22	A blind person cannot find as much understanding at home as he can find somewhere else. D	31	59	28
46	There are too many members of a blind person's family who are just too curious about one's personal affairs. D	42	73	31
52	It's pretty hard for a blind person to keep a pleasant disposition at home. D	49	91	42
58	One trouble that many blind people have is that they can't trust their families. D	60	82	22
76	It's all too true that a blind person's relatives don't like others to know there is a blind person in the family. D	31	55	24
88	Some people in the family act as though the blind person is a burden to them. D	24	47	23

*D—Disagreement indicates adjustment

TABLE III. (PART 5)
MOST DISCRIMINATING ITEMS
"T" (Training) Sub-Scale

Item No.	*Item*	*Per Cent "Adjusted" Responses*		*Diff. of %*
		Poorly Adjusted	*Well Adjusted*	
5	Blind people are not getting good jobs because they are not getting good training. D*	38	51	13
23	A good education is a great comfort to a blind person who is out of work. A**	60	73	13
47	The more education a blind person has, the better he is able to enjoy life. A	70	82	12
53	With proper training a blind person can do just about anything a sighted person can do. D	31	59	28
65	Most of the training offered to the blind is useless in really helping them with their problems. D	56	73	17
71	A lot of job training offered blind people is just a way of getting them to work for nothing. D	56	68	12
77	A training center gives a blind person a chance to learn to be independent. A	74	91	17

*D—Disagreement indicates adjustment
**A—Agreement indicates adjustment

TABLE III. (PART 6)
MOST DISCRIMINATING ITEMS
"O" (Occupational) Sub-Scale

Item No.	*Item*	*Per Cent "Adjusted" Responses*		*Diff. of %*
		Poorly Adjusted	*Well Adjusted*	
6	A blind person has to accept the fact that there are many jobs he simply cannot do. A**	70	86	16
18	A blind person who has ability and is willing to work hard has a good chance of being successful. A	70	95	25
24	In deciding production rates, employers should make considerable allowance for a blind person's handicap. D*	35	64	29
66	Even though you aren't highly skilled, you can do just as well if you really want to. D	24	47	23
72	Employers have a way of expecting a blind person to do things that aren't required of others. D	60	78	18
78	It is more important for a blind person to have pull than to have real ability. D	45	73	28
90	Because they have such a tough time getting to work, employers should overlook tardiness of blind employees. D	53	73	20

*D—Disagreement indicates adjustment
**A—Agreement indicates adjustment

PART IV

Standardization Study

Description of Training Centers

On the basis of information compiled by the Office of Vocational Rehabilitation prior to the Spring Mill Conference (16) and the information collected with the use of a questionnaire during the present study, it was decided to limit this investigation to the population available in nine adjustment centers. This included the centers at Talladega, Alabama; Little Rock, Arkansas; Daytona Beach, Florida; Chicago, Illinois; Topeka, Kansas; Minneapolis, Minnesota; Brooklyn, New York; Dayton, Ohio; and Butner, North Carolina. Four of these centers were operated by state agencies providing vocational rehabilitation services for blind. Five were operated by private agencies working in cooperation with public rehabilitation agencies. The latter included the centers at Little Rock, Arkansas; Chicago, Illinois; Minneapolis, Minnesota; Brooklyn, New York; and Dayton, Ohio.

The duration of training varied greatly from center to center. Most of the centers operated a program lasting from six to twelve weeks with the understanding that additional training could be arranged if indicated. The only center which operated on a more extended basis was that in North Carolina. Here the program operated on a comparable basis to the public school system, where a new group was entered each fall and remained throughout the year until the following June so that in most instances trainees received training over a considerably longer period of time.

Differences were found in the conditions under which Negroes were trained. In Florida white and Negro groups were alternated at the same center. In Alabama and North Carolina separate programs were operated for each of the two groups concurrently with separate facilities and staff. In the majority of cases, Negro blind were trained concurrently with other trainees, using the same staff and facilities.

Description of Subjects

In Table IV is presented a breakdown of the total sample in terms of various categories which were considered relevant; race, sex, center at which subject was trained, amount of training, marital status, etc.

TABLE IV
Population Data (Number of Cases)

Variables	*Total Sample*	*White*	*Negro*
Total Population	155	92	63
Male	103	64	39
Female	52	28	24
Centers			
Alabama	32	12	20
Arkansas	16	16	
Illinois	9	9	
Florida	19	3	16
Kansas	8	8	
Minnesota	4	4	
New York	9	8	1
North Carolina	47	21	26
Ohio	11	11	
Age			
15 through 24 years	40	30	10
25 through 34 years	36	19	17
35 through 44 years	38	17	21
45 through 54 years	26	14	12
55 years and up	13	10	3
N. R.*	2	2	
Amount of Training			
Less than 1 week	5	4	1
1 to 6 weeks	43	24	19
7 to 12 weeks	44	24	20
13 to 24 weeks	25	23	2
25 to 36 weeks	22	11	11
37 to 48 weeks	13	3	10
Over 48 weeks	1	1	
N. R.*	2	2	

*No Response

TABLE IV *(Continued)*
POPULATION DATA (Number of Cases)

Variables	*Total Sample*	*White*	*Negro*
Marital Status			
Single	82	54	28
Married	49	28	21
Divorced	13	5	8
Widowed	10	4	6
N. R.*	1	1	
Age at Onset of Blindness			
0 to 9 years	51	33	18
10 to 19 years	26	18	8
20 to 29 years	29	14	15
30 to 39 years	21	8	13
40 to 49 years	12	7	5
50 to 59 years	12	9	3
60 years or over	0		
N. R.*	4	3	1
Number of Years Blind			
0 to 4 years	40	23	17
5 to 9 years	25	17	8
10 to 14 years	20	8	12
15 to 19 years	14	9	5
20 to 24 years	22	16	6
25 years or more	31	17	14
N. R.*	3	2	1
*L. P.** or Less*	92	56	36
*More than L. P.***	62	36	26
N. R.*	1		1
School for Blind			
Those who attended	47	35	12
Not attended	98	54	44
N. R.*	10	3	7

*No Response
**Light Perception

TABLE IV *(Concluded)*
POPULATION DATA (Number of Cases)

Variables	*Total Sample*	*White*	*Negro*
Years of Education			
0 to 3 years	16	3	13
4 to 6 years	31	11	20
7 to 9 years	31	17	14
10 to 12 years	37	30	7
12 years or over	12	9	3
N. R.*	28	22	6
Type of Home Community			
Rural	46	25	21
Towns	18	4	14
Cities	80	52	28
N. R.*	11	11	
Work Experience			
Yes	47	34	13
No	106	57	49
N. R.*	2	1	1
Other Family Members Blind			
Yes	26	12	14
No	124	78	46
N. R.*	5	2	3

*No Response

The total sample included ninety-two white trainees, of which sixty-four were male and twenty-eight female, and sixty-three Negroes, of which thirty-nine were male and twenty-four female. Two-thirds of the group, therefore, were male and one-third female. Approximately sixty per cent of the group were white and forty per cent Negro.

In considering the distribution of subjects from different centers, we note that North Carolina provided the largest number with a total of forty-seven, followed closely by Alabama with thirty-two. The least number of cases were from Minnesota, where four subjects were tested.

In considering training, we note that more than half of both whites and Negroes were trained for less than twelve weeks. Considering the total population, approximately sixty per cent of the group was in training less than twelve weeks. Those having more than this amount of training were largely trainees from North Carolina.

The age range for the whites was from fifteen to sixty-nine; for the Negroes from nineteen to fifty-nine. In the white sample forty-one, or about forty-five per cent, were less than thirty years of age. In the Negro sample eighteen, or twenty-eight per cent, were less than thirty years of age. The median age for the whites was 33.5; the mean 34.7. The median age for Negroes was 37; the mean 36.7. The Negroes as a group were, therefore, somewhat older than the whites.

In considering marital status, we found the majority were single. In the white sample fifty-four were reported single while thirty-seven were either married or had been married. In the case of Negroes, twenty-eight were single while thirty-five were either married or had been married. The proportion of those married was higher for the Negro sample.

In reviewing the information on age at onset of blindness, we found in the white sample fifty-one became blind prior to twenty years of age while twenty-six Negroes became blind prior to this age. Approximately one-half of the total sample, therefore, became blind prior to twenty years of age. Although the incidence appears to drop off as age increases, this should not be interpreted to mean that blindness is a condition associated with youth. Rather, the sample of blind population in adjustment centers, where clientele are considered as rehabilitation prospects, would necessarily be a more youthful group.

In the information on number of years blind, we found in the white sample forty-eight, or approximately half, had been blind less than fifteen years. In the Negro sample thirty-seven, or somewhat more than half, had been blind for less than fifteen years.

In considering the distribution on the basis of acuity of vision, we note that fifty-six, or about sixty per cent, of the white sample had light perception or less. The proportion was almost identical for the Negro sample.

In the white sample we found that thirty-five, or about a third, attended a school for the blind, while among the Negroes only twelve, or about a fifth, attended such schools. This may have been due to the fact that there was less favorable opportunity for the latter group.

The information on years of education was closely related to attendance at schools for blind. Comparing the number who completed the first six grades, or elementary education, we found in the white sample that fourteen completed only the elementary school compared to forty-seven who completed high school. This situation was reversed in the case of the Negro sample where we found thirty-three completed education through the elementary grades while twenty-one completed high school training. These data also suggested that opportunities appeared to be more limited for Negroes than for whites.

In comparing the information on the kind of home areas from which the trainees came, we found that twenty-nine of the whites came from rural areas or small towns, compared to fifty-two from cities; while in the Negroes, thirty-five came from rural areas or small towns, compared to twenty-eight from cities. Again the situation appears to be reversed for these two groups. In the case of whites, the majority came from cities while in the case of Negroes, the majority came from rural areas or small towns.

We found that the whites had some opportunities for work experience. Thirty-four reported such opportunity against fifty-seven who did not. Among the Negroes, thirteen reported work experience, compared to forty-nine who had no such opportunity.

In the final item we compared the number of individuals who came from families where there were other blind members. Here we found that eighty per cent of the whites came from homes in which there were no other blind people while seventy-six per cent of the Negroes came from homes in which there were no other blind individuals.

Procedure

The procedure employed in collecting data in this phase of the study was comparable to that employed in the preliminary section. In each instance the staff was informed of the purpose of

the study and invited to cooperate by providing ratings on each of the trainees known to them. An attempt was made to secure three independent ratings on each trainee in every center. Instructions were reviewed so that each group would have identical information. Instructors were requested to rate trainees as objectively as possible.

After ratings had been obtained from the instructors, trainees were brought together as a group. In most instances, data was obtained from women and men separately. An attempt was made to keep the group relatively small, with a maximum of fifteen subjects. The usual procedure included instructions to the group on the purpose of the survey, and an attempt was made to impress them with the fact that information gathered in the study was to be used for experimental purposes and would not be a part of their records at the training center. Information was also obtained from each subject on such items as date of birth, marital status, age at onset of blindness, degree of vision, whether or not he attended a school for blind, what grades he completed in school, type of home community, whether or not he had work experience, and whether or not there were other blind people in the immediate family.

Administration of the Measuring Instruments

As before, each client was supplied with a three-sectional tray with forty-two consecutively-numbered cards in the central section. The only difference in this arrangement from the original was that a sheet of sandpaper was placed after each sixth card instead of each tenth to permit more frequent check. The instructions on the use of the scale had been revised somewhat in an effort to provide a greater degree of clarity. (See Appendix I for instructions used in administering the scale.) To provide an objective approach, these instructions were read verbatim to each group. Individuals were further encouraged to raise questions about the instructions in case they were not entirely clear. The trainees were then instructed to take a card from the central section after each item had been read and place it to the right if they agreed and to the left if they disagreed. A check was made after each sixth item by requesting trainees to raise their hand if

they did not locate a sandpaper sheet. Upon completion of the forty-two items, the information was placed on the printed sheet containing the background data. (See Appendix II for Score Sheet and Background Data form.)

Following the above procedure, data were compiled on 155

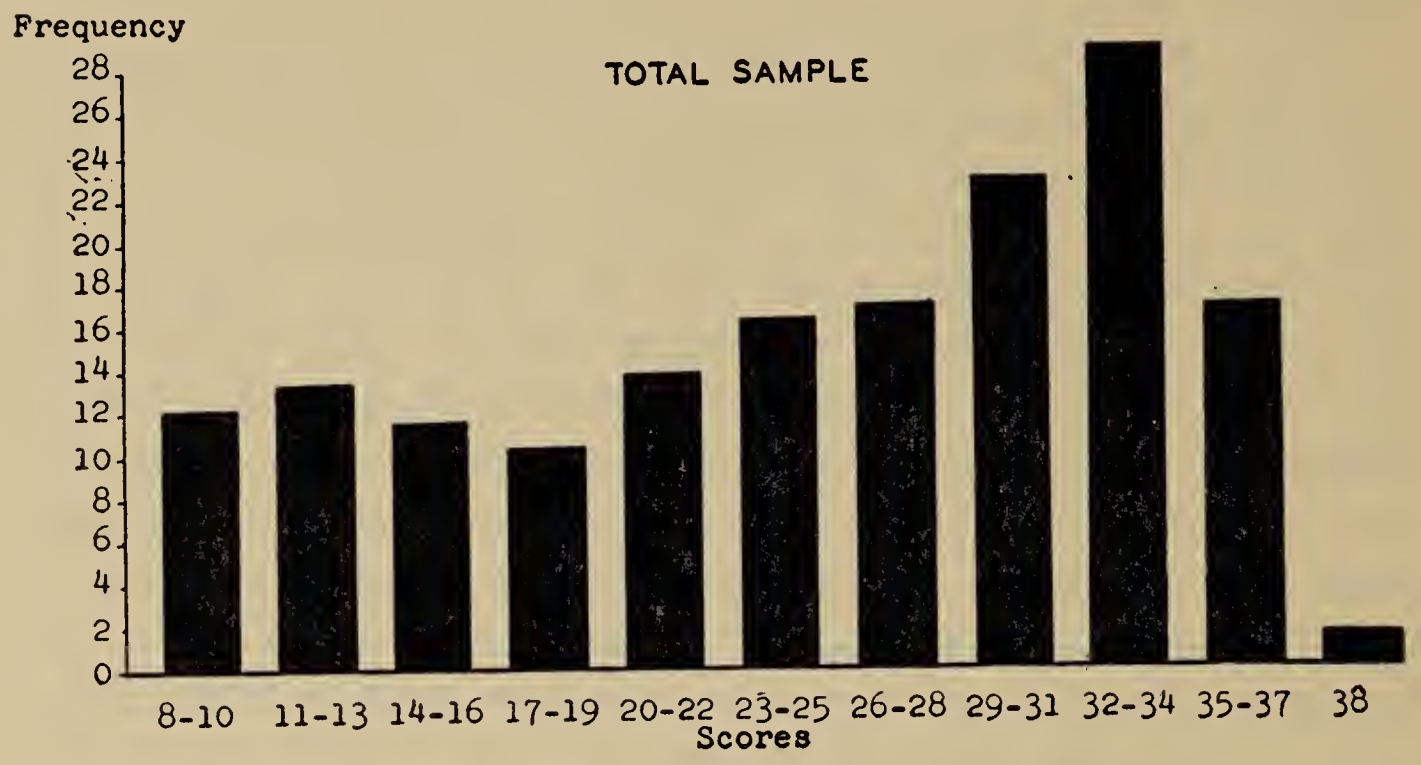

Fig. 1—Distribution of Adjustment Scores.

cases, which included 92 white and 63 Negro trainees. This included all of the trainees who were in attendance in the nine selected adjustment centers in the United States at the time this part of the study was in process.

Scoring of the Tests

The adjustment scale was scored by giving one point for each item answered in the direction indicating good adjustment. Higher scores would indicate a better level of adjustment. The highest possible score was 42; the lowest 0.

Ratings were made on the five-point scale by instructors, as in the preliminary study, in each of the six areas of adjustment and six areas of skill. The six adjustment ratings were totaled to obtain a single adjustment rating. The six skill ratings were combined into a single skill rating. Since most of our subjects' ratings on adjustment and skill were made by two or three judges, the average of such ratings was computed for each individual. It should be pointed out that different numbers and combinations of judges rated different individuals at various centers. Thus, in computing reliability among the various judges, it should be kept in mind that these reliabilities are not based upon the same judges for all cases.

Results

1. Distribution of Adjustment Scores

In Figure 1 we present the distribution of adjustment scores for the total sample of 155 cases; for the white group (N-92) and the Negro group (N-63) separately. It will be noted that the total distribution is a rather meaningless combination of white scores piled up at the higher end of the scale and Negro scores concentrated at the lower end. In view of this marked difference, it appeared desirable to analyze the data of the two groups separately.

In assessing the meaning of the lower Negro adjustment scores, it is important to look for systematic differences between the two groups in characteristics which could influence adjustment status. Table IV has revealed that the Negro sample in this study, compared with the white group, is considerably older, became blind later in life, has much less education, is more rural and has much less work experience. In a later section of this paper, "Adjustment

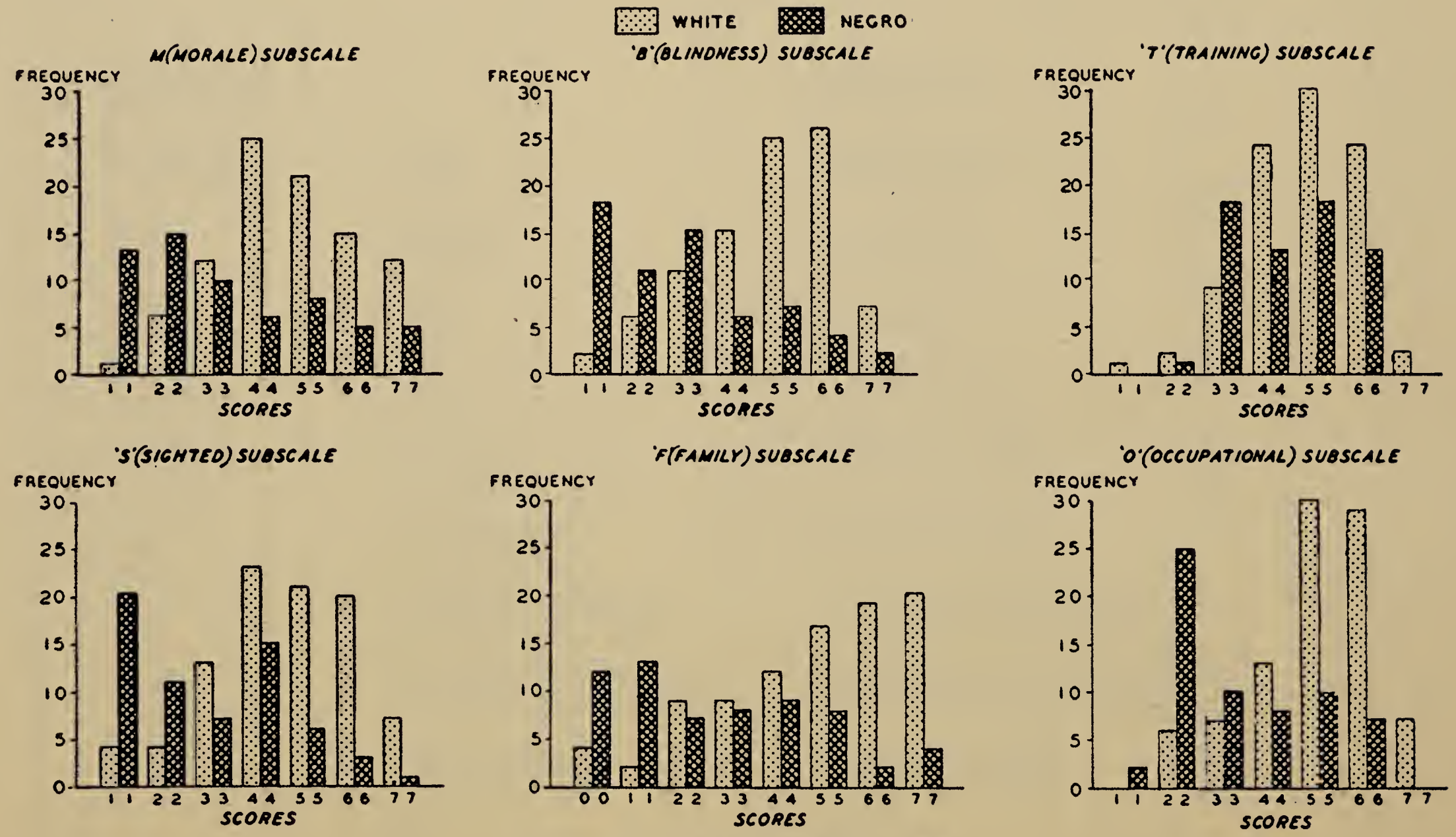

Fig. 2—Distribution of Subscale Scores

in Relation to Other Variables", there is an opportunity to see what effect such differences have on the adjustment score. The analysis which follows immediately simply presents the differences between the two groups included in this study, without going into the causes of the differences or their validity.

2. Distribution of Sub-Scale Scores

It was decided that a study of the distribution of each of the 7-item sub-scales might be helpful in gaining a better understanding of the distribution of the total scores as presented in Figure 1.

TABLE V

A Comparison of Sub-Scales Between White and Negro Samples, Providing the Mean, S. D. and t-Ratio

Sub-Scale	*Mean*		*S. D.*		*t-Ratio*
	White	*Negro*	*White*	*Negro*	
"M" (Morale)	4.65	3.24	1.60	1.88	4.88
"S" (Sighted)	4.54	2.82	1.58	1.64	6.51
"B" (Blindness)	4.75	2.89	1.59	1.71	6.84
"F" (Family)	4.72	2.65	1.95	2.12	6.18
"T" (Training)	4.74	4.38	1.23	1.15	1.89
"O" (Occupational)	4.96	3.29	1.31	1.46	7.29
Average of Mean	4.73	3.21			

An analysis of the sub-scale score distribution is presented in Figure 2 for both the white and the Negro sample.

In the white sample there is a tendency for the distribution to be skewed to the left; i.e., a greater number of individuals received high scores. Table V provides a comparison between these scores. The highest mean is in the "Occupational" sub-scale, the lowest in the "Sighted" sub-scale; however, the average is 4.73. In the Negro sample it will be noted that there is an opposite tendency; namely, that the distribution has a tendency to skew to the right; i.e., a greater number of individuals received low scores. Again comparing the mean, we find that the highest is in "Training" while the lowest is in the "Sighted" sub-scale. The average

of the means is 3.21, or about as far to the right of center as the white group is to the left.

In the "F" sub-scale we note that twelve Negro subjects received a zero score, and four white subjects received such a score. This is the only sub-scale in which individuals in either group received such a score. Therefore, the "Family" sub-scale has a greater range than any other.

Further comparison between the white and Negro samples can be made by comparing the t-ratio as shown in Table V. It will be noted that the t-ratios for the "Sighted," "Blindness," "Family" and "Occupational" sub-scales are highly similar. The only scale in which the difference between the means is not statistically significant is in the "Training" sub-scale. In comparing the means of the Negro and the white scores, then we have differences that are statistically significant in five out of the six sub-scales. This provided further evidence that it was necessary to treat the data obtained from these two groups separately. It further suggested that the Negro sample in this study tended to be more maladjusted than the white group, an observation which was substantiated in later analysis.

3. Reliability of the Adjustment Scale

Reliability was determined by comparing the odd with the even-numbered items. In the white group the correlation was found to be .88; for the Negro group .87. After correction by the Spearman-Brown formula, the reliabilities were .94 and .93 respectively. It should be noted that these correlations were higher than those obtained in the preliminary study, where the same forty-two items yielded a corrected correlation of .83. The present reliability was considered quite satisfactory for a scale purporting to measure such a complex thing as personal adjustment.

To determine further internal consistency of the tests, we correlated the total adjustment score with the six sub-scale scores. Table VI shows the relationship between each of the sub-scales and the total adjustment score, as well as the mean and standard deviation for the various sub-scales.

It was noted that the correlation between sub-scale scores and total scores for both white and Negro groups in general were

TABLE VI

MEANS AND STANDARD DEVIATIONS FOR SUB-SCALES AND CORRELATION BETWEEN ADJUSTMENT SCORES AND SUB-SCALES

	White (N=92)			*Negro (N=63)*		
	r	*M*	*S. D.*	*r*	*M*	*S. D.*
Total Adjustment Scale		28.36	6.32		19.27	8.18
Adjustment Sub-Scales						
"M" (Morale)	.70	4.65	1.46	.88	3.24	1.88
"S" (Sighted)	.74	4.54	1.46	.87	2.82	1.64
"B" (Blindness)	.76	4.75	1.45	.80	2.89	1.71
"F" (Family)	.85	4.72	1.95	.87	2.65	2.12
"T" (Training)	.46	4.74	1.14	.64	4.38	1.15
"O" (Occupational)	.70	4.96	1.27	.79	3.29	1.46

relatively high. For the white group the reliability was from .46 to .85. For the Negro group the range was from .64 to .88. Five of the reliabilities were in the .80's, five in the .70's, one in the .60's, and one in the .40's. The sub-scale scores correlate to a greater degree with the total adjustment score in the Negro group than in the white group. In both groups the "T" (Training) sub-scale correlated the least with the total score. The correlation of the "F" (Family) sub-scale appeared to be the highest. These results further substantiate the previous conclusion that the adjustment scale is a reliable measure for both white and Negro groups.

Another method of determining internal consistency of the adjustment scale was by item analysis which follows this section.

4. Item Analysis of the Adjustment Scale

The data on item analysis are presented in Table VII.

TABLE VII

ITEM ANALYSIS DATA

White sample (N = 23) t ratio: 1 per cent level = 2.69
5 per cent level = 2.01

Negro sample (N = 16) t ratio: 1 per cent level = 2.75
5 per cent level = 2.04

No.	*Item*	*Per Cent "Adjusted" Responses*		*Diff. of %*	*t Ratio*
		Poorly Adjusted	*Well Adjusted*		
1.	In times like these, one is inclined to give up hope of getting ahead. D*				
	W.	35	83	48	3.81
	N.	13	75	62	4.53
2.	A blind person would be better off if he chooses mainly sighted friends. D				
	W.	17	70	53	4.24
	N.	6	69	63	4.85
3.	A person might as well accept the fact that blindness makes people pretty helpless. D				
	W.	52	96	44	2.65
	N.	0	81	81	8.26
4.	One trouble with many families is that they expect too much from the blind person. D				
	W.	48	100	52	5.00
	N.	6	88	82	8.12
5.	Blind people are not getting good jobs because they are not getting good training. D				
	W.	17	65	48	3.78
	N.	19	81	62	5.18
6.	A blind person has to accept the fact that there are many jobs he simply cannot do. A**				
	W.	74	78	4	.32
	N.	13	25	12	1.06

*D—Disagreement indicates adjustment

No.	Item	Per Cent "Adjusted" Responses: Poorly Adjusted	Well Adjusted	Diff. of %	t Ratio
7.	It is difficult for a person to think clearly these days. D				
	W.	43	70	27	1.93
	N.	0	75	75	6.94
8.	There are altogether too many sighted people working in agencies serving the blind who do not know the problems of blind people. D				
	W.	30	43	13	.93
	N.	0	19	19	1.94
9.	Many people become blind as a kind of punishment for something they did. D				
	W.	65	100	35	3.57
	N.	13	69	56	3.92
10.	A blind person cannot find as much understanding at home as he can find somewhere else. D				
	W.	30	74	44	3.33
	N.	6	50	44	3.19
11.	A good education is a great comfort to a blind person who is out of work. A				
	W.	83	74	−9	
	N.	100	75	−25	
12.	A blind person who has ability and is willing to work hard has a good chance of being successful. A				
	W.	100	91	−9	
	N.	100	100	0	
13.	Life is just one worry after another in these times. D				
	W.	22	83	61	5.21
	N.	0	69	69	5.94
14.	Because they know each others' problems better, the blind can put their trust in other disabled people more than those non-disabled. D				
	W.	26	78	52	4.13
	N.	0	63	63	5.20
15.	When you are blind you are constantly worried about what may happen to you. D				
	W.	13	91	78	3.88
	N.	0	50	50	4.03

**A—Agreement indicates adjustment

No.	Item	Per Cent "Adjusted" Responses: Poorly Adjusted	Well Adjusted	Diff. of %	t Ratio
16.	There are too many members of a blind person's family who are just too curious about one's personal affairs. D				
	W.	22	100	78	8.96
	N.	6	63	57	4.22
17.	The more education a blind person has, the better he is able to enjoy life. A				
	W.	78	78	0	
	N.	100	88	−12	
18.	In deciding production rates, employers should make considerable allowance for a person's handicap. D.				
	W.	26	87	61	3.56
	N.	0	75	75	6.94
19.	No one cares much what happens to you. D				
	W.	70	100	30	3.16
	N.	19	100	81	8.26
20.	It may be dangerous for a blind person to do something alone, but it is better than asking for help. D				
	W.	39	87	48	3.90
	N.	0	63	63	5.20
21.	It is only natural for a blind person to do an awful lot of day dreaming. D				
	W.	48	74	26	1.87
	N.	13	69	56	3.92
22.	It is pretty hard for a blind person to keep a pleasant disposition at home. D				
	W.	35	96	61	3.74
	N.	6	88	82	8.12
23.	With proper training, a blind person can do just about anything a sighted person can do. D				
	W.	21	11	−10	
	N.	0	13	13	1.55
24.	Even though you aren't highly skilled, you can do just as well if you really want to. D				
	W.	13	43	30	2.40
	N.	0	6	6	

No.	Item	Per Cent "Adjusted" Responses: Poorly Adjusted	Well Adjusted	Diff. of %	t Ratio
25.	Life is just a series of disappointments. D				
	W.	61	96	35	2.13
	N.	0	94	94	17.27
26.	Most people who work with the blind are really interested in helping them. A				
	W.	78	91	13	1.24
	N.	100	100	0	
27.	With the progress being made by medical science, there is little doubt that most blindness will be curable in the near future. D				
	W.	22	48	26	1.91
	N.	0	38	38	3.14
28.	One trouble that many blind people have is that they can't trust their families. D				
	W.	43	100	57	5.53
	N.	25	69	44	2.77
29.	Most of the training offered to blind is useless in really helping them with their problems. D				
	W.	52	87	35	2.69
	N.	6	81	75	6.52
30.	Employers have a way of expecting a blind person to do things that aren't required of others. D				
	W.	52	100	48	4.63
	N.	6	81	75	6.52
31.	Most people are usually happiest during their childhood. D				
	W.	9	48	39	3.42
	N.	0	44	44	3.75
32.	Most sighted people just pretend they like you. D				
	W.	70	100	30	3.12
	N.	0	81	81	8.26
33.	There are things worse than being blind. A				
	W.	74	91	17	1.12
	N.	100	88	−12	
34.	It's all too true that a blind person's relatives don't like others to know there is a blind person in the family. D				
	W.	26	100	74	8.04
	N.	0	81	81	8.26

No.	Item	Per Cent "Adjusted" Responses: Poorly Adjusted	Well Adjusted	Diff. of %	t Ratio
35.	A lot of job training offered blind people is just a way of getting them to work for nothing. D				
	W.	52	100	48	4.61
	N.	25	100	75	7.14
36.	It is more important for a blind person to have pull than to have ability. D				
	W.	48	100	52	5.00
	N.	0	88	88	10.86
37.	It is great to be living in these exciting times. A				
	W.	87	91	4	
	N.	100	94	−6	
38.	Sighted people expect the blind to do things that are impossible. D				
	W.	48	96	48	2.89
	N.	6	88	82	8.12
39.	A blind person shouldn't have to meet the same standards as others. D				
	W.	26	87	61	3.56
	N.	0	81	81	8.26
40.	Some people in the family act as though the blind person is a burden to them. D				
	W.	22	87	65	5.80
	N.	0	56	56	4.52
41.	A training center gives a blind person a chance to learn to be independent. A				
	W.	87	96	9	
	N.	100	88	−12	
42.	Because they have such a tough time getting to work, employers should overlook tardiness of blind employees. D				
	W.	43	100	57	5.53
	N.	0	88	88	10.86

In this is reported the per cent of answers in the direction indicating adjustment, comparing the quarter with the lowest adjustment score to the quarter with the highest adjustment score. The difference in per cent of the appropriate answers and the t-ratio between these groups is also given.

In reviewing the entire scale for the white group we found that there were twenty-nine of the forty-two items, or about seventy per cent, which discriminated significantly between high and low-adjusted groups. For the Negro sample, thirty-one of the forty-two items, or about seventy-six per cent, discriminated significantly between the two groups on the basis of their adjustment score. Three items discriminated significantly for the Negro group (Nos. 7, 21 and 27) but did not so discriminate for the white group. Only one item (No. 24) was significantly discriminatory for the white group but not for the Negro group. Nos. 26 and 33 discriminated to a limited degree for the whites but not for the Negroes. Twenty-six of the items which discriminated satisfactorily for both groups had a higher t-ratio for the Negro sample than the white sample. Only four items (Nos. 10, 16, 28 and 40) had a higher t-ratio for the white group than the Negro group. Seven of the items have a negative relationship, indicated by the fact that the low-adjusted group for either white or Negro had a higher per cent of items answered appropriately than the high-adjusted group (Nos. 11, 12, 17, 23, 33, 37 and 41). It is interesting to note that all except one of these items (No. 23) are answered in the adjusted direction by agreement rather than disagreement. The latter item showed some discrimination for the Negroes but none for the whites.

Positively-stated items in this study have little value in discriminating between high and low adjustment. Although there are only eight such items in the entire scale, none of these discriminate significantly between the high and low-adjusted groups. These findings regarding the positively-worded items correspond closely to findings reported by other investigators in the field of personality and attitude measurement.

Those who are interested in making a comparison between the original item analysis done in the preliminary study to the analysis made in the standardization study may secure this information by

referring to Appendix III where this comparison is presented in table form.

5. Reliability of Judges' Ratings

Before turning to the problem of validity of the adjustment scale, it appeared necessary to consider the reliability of judges' ratings which were used as the external criterion. These relevant data are presented in Table VIII, "Correlation between Judges' Ratings on Skill and Adjustment."

TABLE VIII
CORRELATION BETWEEN JUDGES' RATINGS ON SKILL AND ADJUSTMENT

Variables	*White*			*Negro*		
	N	*Skill Ratings*	*Adjustment Ratings*	*N*	*Skill Ratings*	*Adjustment Ratings*
Judges 1 and 2	86	.67	.47	63	.64	.53
Judges 1 and 3	66	.74	.51	53	.67	.49
Judges 2 and 3	66	.75	.58	53	.70	.45
Average Correlation		.72	.52		.67	.49

The reliability of skill ratings ranged from .64 to .75 and of adjustment from .45 to .58. It should be noted that in every case the correlation between judges' ratings on skill was somewhat higher than the correlation between judges' ratings and adjustment. This may have been due to the fact that there was a more objective basis for observing degree of skill than for observing degree of adjustment as we defined it.

It should be remembered that the three ratings on each trainee were assembled randomly and that, consequently, Judges 1, 2 and 3 did not represent individuals but the composite judgment of many individuals whose ratings were compiled at random.

The three ratings were combined and listed on the table as the average correlation. The average adjustment reliability for the white group was .52; for skill .72. The average reliability for adjustment for the Negro group was .49; for skill .67. In both categories the average correlation for skill was higher than for adjustment. It should be noted also that the average correlation

for both skill and adjustment were slightly lower for the Negro sample than the white sample. Attention is called to the fact that these are uncorrected reliabilities. Had these combinations of reliabilities been corrected, they would have been somewhat higher.

6. Relationship Between Adjustment and Skill Rating

A further analysis which may be of interest in the present connection is the relationship between adjustment rating and skill rating. It is reasonable to assume that a high correlation between adjustment and skill ratings would mean that judges are not discriminating to any degree between skill and adjustment, due, perhaps, to a strong "halo" effect. A judge, under most circumstances, would have at least some knowledge of the client's adjustment in functional skill areas, and, in turn, would influence his rating of the client's adjustment.

In this comparison, we found the average of three ratings provided by the judges. For the Negro sample the correlation between the judges' ratings on adjustment to judges' ratings on skill was .84. For the white sample the correlation was .89. It would appear, therefore, that the judges did not discriminate to any great extent between adjustment and skill in rating clients. Apparently the judges were being global rather than analytical in their ratings. On the basis of these findings, we anticipated that the validity coefficient between adjustment scale scores and adjustment ratings would be approximately the same as correlations between adjustment scale scores and skill ratings. We turn now to consider this problem.

7. Validity of the Adjustment Scale

As previously indicated, the external criteria to be used in determining the validity of the adjustment scale were the average ratings in adjustment and skill by instructors working with blind subjects in adjustment training centers. As reported in the previous section in reliability study, there was only a moderate degree of consistency among judges' ratings. Under the circumstances, it was unlikely that a high validity correlation could be anticipated. With the ninety-two white subjects the coefficient of correlation between adjustment score and average adjustment rating was .34

with average skill rating .22. The same comparison with the sixty-three Negro subjects yielded a correlation of .22 with adjustment and .19 with skill. Comparing these results to the analysis of previous data, we find that the Saginaw sample yielded a correlation of .36, or somewhat higher than the present validity.

In view of the fact that the reliability of judges' ratings was considerably less than perfect, it was necessary to correct the validity coefficients obtained for attenuation. The question we asked was, "What is the estimated validity of the present test, assuming that the external criterion is perfectly reliable?" According to Guilford (21) such an estimated validity is a better approximation of the true validity than the obtained validity. The formula given by Guilford to correct for such attenuation is as follows:

$$r_{\infty x} = \frac{r_{xy}}{\sqrt{r_{yy}}}$$

In computing $r_{\infty x}$ the r_{xy} equals the obtained validity coefficient, and r_{yy} the correlation between the judges' ratings. The mean of the three available uncorrected correlations between judges' ratings in both adjustment and skill were used. (See Table VIII for correlation between judges' ratings.) The corrected validity correlation for the white sample with adjustment ratings was .47; for skill ratings .26. For the Negro sample the corrected validity for adjustment was .31; for skill .23. In view of the fact that the correlations between judges' ratings are moderately high in the skill field, there is little difference between the corrected and uncorrected validity correlations. However, the correlations between judges, ratings in adjustment were somewhat lower; therefore, the corrected validity correlations are increased to a greater extent than the skill correlations.

Further analysis of the validity of the adjustment scale was made by comparing the adjustment score on the six sub-scales to ratings by instructors in skill and adjustment. This comparison is presented in Table IX. In analyzing this information we note that all correlations between the sub-scale scores for adjustment and judges' ratings on skill and adjustment are relatively low. In comparing the mean of the six correlations, we note that it was somewhat higher for adjustment than for skill. Correlations are

TABLE IX

CORRELATION OF ADJUSTMENT SCORE ON SUB-SCALES
JUDGES' RATINGS ON SKILL AND ADJUSTMENT

Sub-Scale	*White* (N = 92)		*Negro* (N = 63)	
	Skill	*Adjustment*	*Skill*	*Adjustment*
"M" (Morale)	.03	.12	.24	.26
"S" (Sighted)	.25	.26	.26	.25
"B" (Blindness)	.18	.21	.05	.15
"F" (Family)	.22	.22	.06	.07
"T" (Training)	.23	.25	.17	.19
"O" (Occupational)	.07	.05	.12	.15
Mean of Correlations	.165	.185	.150	.178

also somewhat greater for the whites than the Negroes. We may conclude that the correlations between sub-scale scores and judges' ratings are rather insignificant. The adjustment score apparently is more valid when considered in its entirety rather than on the basis of its component parts.

While the corrected validities presented previously indicate that the adjustment scale is moderately valid, it was hypothesized that its validity would be higher if there was some assurance that the subjects rated were relatively well known by the judges who rated them. Accordingly, the subjects were sub-divided into two groups; those who had been in the centers for a shorter period of time (from one to eleven weeks) and those who had been in the centers for a relatively longer period of time (eleven to forty-eight weeks). If our hypotheses were correct, we should expect higher validities for the latter group.

In the white sample with shorter term training the correlation between adjustment scores and adjustment ratings was .40; between adjustment scores and skill ratings .38. With the longer term group the correlation between adjustment scores and adjustment rating was .27; with skill rating .32. Instead of an increase, therefore, we find a decrease in the correlations between adjustment score and adjustment ratings between the shorter term and longer term groups. In the comparison between adjustment score and skill ratings there is very little difference between the two groups.

The comparison with the Negro sample yielded the results we anticipated. Here we found the correlation between adjustment scores and judges' ratings in adjustment in the shorter term group to be .21; the correlation between adjustment score and judges' ratings in skill .13. In the longer term group the correlation between adjustment scores and judges' ratings in adjustment was .39; between adjustment scores and judges' ratings in skill .41. This indicates considerable increase, especially between adjustment score and skill rating, and a moderate increase between adjustment scores and adjustment ratings, which would tend to verify the hypothesis. In an effort to analyze the reason why the data on the Negro sample yielded the results anticipated while the data on the white sample did not, we noted one difference between these two samples. In the case of the Negro data for the well-trained group, all of the individuals came from one center; namely, North Carolina. In the white sample the group selected as well trained represented a number of centers. Therefore, a factor to be considered in computing validity was the fact that an increase in the number of judgments from different centers tended to decrease the validity. Therefore, if we restricted ourselves to only one center, where few judges were involved, the validity should be higher. To test this hypothesis we computed the validity coefficients for the North Carolina sample alone, where we tested twenty-one white and twenty-six Negro trainees. The results are shown in Table X.

The correlation between adjustment score and adjustment rating is .57 for the white group and .40 for the Negro group. The correlation between adjustment score and skill rating is .59 for the white group and .41 for the Negro group. Using the uncorrected correlations between judges' ratings in the North Carolina sample which appear in Table XI, when corrected for attenuation, the validity between adjustment score and adjustment rating is .79 for whites and .64 for Negroes. With similar correction between adjustment score and skill rating, the validity for the white group is .66 and for the Negro group .49. These validity correlations are surprisingly high for the whites and moderately so for the Negroes. These afford the best estimate presented in the study of the validity of the adjustment scale.

TABLE X

CORRELATION OF ADJUSTMENT SCORE WITH THE AVERAGE RATING IN ADJUSTMENT IN THE NORTH CAROLINA SAMPLE

Correlations	*White* (N = 21)						*Negro* (N = 26)					
	Adjustment Rating			*Skill Rating*			*Adjustment Rating*			*Skill Rating*		
	r	*Mean*	*S. D.*	*r*	*Mean*	*S. D.*	*r*	*Mean*	*S. D.*	*r*	*Mean*	*S. D.*
Adjustment score with Average adjustment rating	.57	20.29	2.90				.40	16.65	2.51			
Adjustment score with Average skill rating				.59	20.86	3.56				.41	16.46	2.46
Corrected for attenuation	.79			.66			.64			.49		

ote:

Level of Significance	1%	5%
White (N = 21)	.526	.413
Negro (N = 26)	.478	.374

TABLE XI

CORRELATION OF JUDGES' RATINGS—NORTH CAROLINA SAMPLE

	White (N = 21)		*Negro* (N = 26)	
	Adjustment	*Skill*	*Adjustment*	*Skill*
Judges 1 and 2	.26	.69	.53	.61
Judges 2 and 3	.85	.91	.20	.74
Judges 1 and 3	.45	.83	.44	.77
Average of correlations	.52	.81	.39	.71

Unfortunately, the number of cases obtained from centers other than North Carolina are too small to warrant similar analysis. Further research at a single center where there are relatively large numbers of subjects, employing the same judges, would be well worth while.

Uncorrected reliabilities of the ratings in Table XI are similar to the correlation between judges' ratings in the total sample reported in Table VIII.

8. Adjustment in Relation to Other Variables

In comparing the mean adjustment score of various categories in the background data, we found a number of statistically significant relationships, reported in Table XII, "Comparison of Background Data," in which are given the N, the Mean, the S. D. and the t-ratio. This table provides a comparative study for both white and Negro samples. Where the numbers were comparatively small, they were combined to provide a comparison which was more adequate. This is reported under the section "Total Sample."

In analyzing the data on marital status, we combined the information to include all individuals who were either married or had been married and compared their mean adjustment score to that of single individuals. In the white sample the difference was not statistically significant; however, in the Negro sample there was a greater difference, although it did not quite reach the five per cent level, the t-ratio being 1.98. In combining these two categories, we have a more adequate number which provided a t-ratio of 2.39. From this information we may conclude that single individuals achieved a better adjustment score than individuals who were or had been married.

TABLE XII

COMPARISON OF BACKGROUND DATA

	White			*t*	*Negro*			*t*	*Total Sample*			*t*
	N	*Mean*	*S. D.*	*Ratio*	*N*	*Mean*	*S. D.*	*Ratio*	*N*	*Mean*	*S. D.*	*Ratio*
Marital Status												
Single	54	27.92	8.53		28	21.50	8.14		82	26.11	7.29	
Married or were married	37	28.13	6.40	N.S.*	35	17.48	7.78	1.98	72	22.95	8.88	2.39
Age at Onset of Blindness												
Under 20	51	29.02	6.13		26	22.23	7.77					
Twenty or over	38	27.68	8.64	N.S.	36	16.75	6.75	2.88				
Attended School for Blind												
Yes	35	30.26	4.43		12	24.92	7.17		47	28.89	5.79	
No	53	27.44	7.12	2.31	44	18.36	7.83	2.76	98	23.37	8.67	4.52
Amount of Education												
Elementary	14	28.79	5.84		33	16.06	6.79		47	19.85	9.89	
Secondary	47	29.10	6.45	N.S.	21	25.14	2.66	5.22	68	27.59	7.09	4.59
Type of Community												
Rural	25	30.24	5.39		21	20.57	7.31					
Towns and cities	52	27.40	6.76	1.98	28	19.96	8.59	N.S.				
Work Experience												
Yes	34	30.56	4.75		13	19.92	5.58		47	27.62	6.89	
No	57	27.00	6.79	2.94	49	19.27	8.10	N.S.	106	23.41	9.95	3.03
Other Blind in Family												
Yes	12	25.83	8.16		14	16.57	6.36		26	20.85	8.63	
No	78	28.69	5.98	N.S.	46	20.00	8.44	N.S.	124	25.47	8.21	2.54

*Not Significant

In comparing the data on the age of individuals at onset of blindness, we found the greatest difference to exist between those who had been blind prior to twenty years of age as compared to those who became blind after that age. The mean adjustment score was greater for those who became blind in their childhood or youth in both categories. However, the difference in the white sample was not sufficiently great to be significant. In the Negro sample the difference was greater, providing a t-ratio of 2.88, which was significant beyond the one per cent level of confidence.

The only comparison in which the difference was statistically significant in both white and Negro categories was in comparing individuals who had attended schools for the blind with those who had not. In both groups those individuals who had attended a school for the blind achieved a higher adjustment score than those who had not. The greatest difference was in the Negro sample where the t-ratio was 2.76 compared to the t-ratio of 2.31 for the white sample. When the categories were combined, as might be anticipated, the t-ratio of 4.52 was higher and was beyond the one per cent level of significance. On the basis of this evidence we concluded that individuals who have opportunities to attend schools for the blind achieve a higher adjustment score than individuals who did not have such opportunity.[1] The educative process appears to contribute in some way to the individual's ability to make a better adjustment. This conclusion should be especially significant in considering the purpose of adjustment training. If attendance at schools for the blind as children permits adult individuals to achieve higher adjustment scores, then it may be hypothesized that comparable training for blind adults in adjustment centers should permit individuals to achieve a higher level of adjustment than those who do not attend such centers.

When analyzing the data on mean adjustment scores in relation to years of training, it appeared advantageous to compare those who had completed six years of training, or elementary school program, against those who had completed junior and senior high school, or twelve years of training. With the white

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[1] Attendance at schools for the blind is cited here as one type of educational opportunity. No comparison is intended with public school education of blind children.

sample we found that this comparison was not statistically significant; however, in the Negro sample, even though the number is extremely small, we have a t-ratio of 2.76. Combining the two categories and, thus, providing a more adequate number, we secured a t-ratio of 4.59, which is almost identical to the t-ratio of the combined sample in comparing those who had attended a school for blind to those who had not. Apparently, therefore, there is a high degree of relationship between the individual's ability to achieve a high adjustment score and his opportunity for satisfactory educational experiences. It appears that the more favorable the educational experience, the better is the individual's capacity to achieve a desirable level of adjustment.

The mean adjustment score for individuals from rural areas appeared to be somewhat higher than those from towns and cities. The greatest difference was found in the white sample, where a t-ratio of 1.98 is reported, which is slightly below the five per cent level of significance. The comparison with the Negro sample did not yield results which were significant. On the basis of this information, therefore, there was little difference between the level of adjustment in comparing individuals from different types of communities.

Comparison on the basis of work experience indicated that those who had such experience achieved a higher adjustment score. In the white sample the t-ratio is reported as 2.94, being slightly beyond the one per cent level of confidence. The number in the Negro sample is so small for those with work experience that it did not permit adequate analysis. However, when the categories are combined to provide an adequate number, we found the t-ratio to be 3.03, which is beyond the one per cent level of significance. This should permit us to conclude that individuals who have work experience achieved a better adjustment score.

In comparing for the total sample the mean adjustment score of individuals from homes in which there were other blind members with the average score of those from homes in which there were none, it was found that the latter achieved a somewhat higher score. In computing the difference for the white and Negro samples separately, the number in each case was so small that it was not possible to make adequate comparisons. However, when the

categories were combined, a t-ratio of 2.54 was obtained, which would indicate a significant difference in favor of individuals from homes in which there were no other blind members.

In conclusion, therefore, it can be stated that the most significant difference found in comparing the types of background data analyzed here is that related to educational experience. Although the present study indicates that there is a significant relationship between the level of adjustment and amount of educational experience, this is not necessarily an indication of causal relationship. There are possibly other contributing circumstances which could account for this relationship. Such selective factors as initial intelligence, socio-economic status, educational opportunity, and the like, could well be contributing or possibly be more crucial determinants of adjustment than the factors considered in this study. A factor like educational opportunity may very well account for the differences found here between Negroes and whites. The difference in adjustment scores between these two groups is matched by the difference between those with elementary school and those with secondary school education, taking whites and Negroes together.

These results emphasize a fact already well known to social scientists, that the mere fact of belonging to a given race tells you nothing of an individual's adjustment, and that environmental factors such as those noted above have a considerable influence on adjustment.

Another factor which may have acted to depress the scores of Negroes in this study, almost all of whom are from southern states, relates to their position in the social structure of this region. A generally submissive attitude might find expression in agreement rather than disagreement with test items. On the present scale, this would make for a lower adjustment score.

PART V

Conclusions

Summary

Rehabilitation services in this country are the out-growth of increased public consciousness of the need for such service as the result of two world wars. Separate programs for the blind appeared to be necessary as such individuals required many special services. This need was recognized in the armed services by providing specialized rehabilitation centers. The success achieved in these centers resulted in the establishment of a number of civilian adjustment centers. In an attempt to determine whether or not such services were justified, both public and private agencies were interested in the present project of developing techniques to evaluate adjustment to blindness. The hypothesis was presented that, by following scientific procedures, an instrument could be developed which would be both reliable and valid in evaluating adjustment to blindness.

A review of literature on adjustment to blindness indicated that there are at least three general areas of adjustment encountered by visually-handicapped individuals. These are summarized as follows:

1. *Functional skills.* This includes all skills which the individual must acquire to permit him to operate with an optimum degree of independence.
2. *Social competence.* This not only includes acquisition of skills but development of acceptable attitudes to permit the individual to interact successfuly with his fellow men.
3. *Psychological area.* This is concerned primarily with the development of satisfactory attitudes toward problems of blindness so the individual encounters a minimum of tension and frustration. An individual's level of adjustment is characterized by the attitudes he has toward such problems.

Centers had developed a degree of competence in the area of evaluating functional skills. Many satisfactory methods had been developed to evaluate the individual's social competence. The least had been accomplished in the area of evaluating attitudes toward problems encountered by individuals as the result of blindness. For this reason, it was decided that in the present project the emphasis would be placed in the area of developing techniques to evaluate attitudes toward problems encountered by individuals as the result of blindness.

Four points of departure were used in developing an instrument to evaluate adjustment to blindness. They were as follows:

1. A review of the literature about blindness.
2. A survey of attitudes of selected groups of blind individuals.
3. A study of problems encountered in rehabilitation activity.
4. Consideration of personal experience in working with the blind over an extended period of time.

Use of these resources resulted in the construction of a scale purported to evaluate adjustment to blindness. As here interpreted, adjustment to blindness includes six areas which are as follows:

1. *Morale.* To be well adjusted, the blind individual should not be over-optimistic nor pessimistic but have a realistic confidence in his ability to cope with problems which he may encounter as the result of his disability.
2. *Attitude toward Sighted People.* To be well adjusted, the blind individual should not reject all assistance of sighted people nor become wholly dependent upon them but must have a wholesome attitude toward his relationship with sighted people with whom he comes in contact.
3. *Outlook on Blindness.* The well-adjusted blind person neither rejects blindness as inconsequential nor succumbs to it as being totally incapacitating but accepts the disability in a realistic manner.
4. *Family Relationships.* A well-adjusted blind person neither demands extensive special services from the family, nor does he permit the family to completely dominate him, but he

establishes the kind of relationship in the family which permits him to share and contribute on an equitable basis.

5. *Attitude toward Training.* A well-adjusted blind person does not reject training as being valueless, nor does he look upon this as a cure-all, but he uses such facilities to permit him to acquire skills and attitudes which should enable him to live more effectively.
6. *Occupational Outlook.* The well-adjusted blind person recognizes that his physical disability imposes certain vocational limitations but, at the same time, he does not excuse mediocre performance on the basis that special concessions must be made to him because of his disability.

This concept of adjustment resulted in the construction of a 90-item preliminary scale. This was administered to several groups of blind individuals, which resulted in certain refinements. Forty-two of the original ninety items were finally selected as the experimental scale which was used in nine adjustment training centers.

A rating scale was devised and used as an external criterion against which the instrument could be validated. Background data were also compiled which could be used in analyzing individual level of adjustment. Data were collected in nine centers from one hundred fifty-five cases, ninety-two subjects being white and sixty-three Negro. Techniques were developed to permit the scale to be administered to groups which allowed individuals to respond to items without necessitating a verbal statement to the examiner.

An analysis of the distribution of the adjustment score indicated that the white population in the study responded somewhat differently from the Negroes and therefore, it was considered necessary to analyze these data separately. This difference appeared to be related to differences in the backgrounds of the two groups.

The most striking relationship in the background data was that found between education and adjustment. The study indicated that there was a direct relationship between the amount of education, such as at a school for the blind, and the level of adjustment. In the case of Negroes there was some evidence to indicate that single individuals were better adjusted than married individuals. In the Negro sample it was observed that individuals who

became blind under twenty years of age achieved a better adjustment than those who became blind after that age. In the case of white individuals there was some evidence indicating that individuals from towns and cities achieved somewhat better adjustment than those from rural areas. In the case of the white group, those who had work experience were better adjusted than those who had no such opportunity. Considering the total sample, there was some evidence indicating that individuals coming from homes in which there were no other blind people achieved a higher level of adjustment than those who came from homes in which there were blind members.

Each of the forty-two items was analyzed by comparing the lower quarter of the group to the upper quarter on the basis of their adjustment score. In this analysis we noted that all items that were answered appropriately by agreement were ineffective in evaluating adjustment. Of those items which were answered appropriately by disagreement, only one (23) had questionable value for both white and Negro groups. If the seven items answered appropriately by agreement and the one item answered appropriately by disagreement were eliminated, this would leave thirty-four items which did discriminate effectively.

Analysis of the data for reliability and validity provided satisfactory results. The corrected reliability for whites was .94; for Negroes .93. When considering the data from all centers, and comparing these to ratings of many judges, the validity was somewhat disappointing. However, when the data from a single center were used, where only a few judges were involved, the results were more satisfactory. In the white group the corrected validity of the adjustment score to the adjustment rating was .79; to skill rating .66. With the Negro group the corrected validity of the adjustment score to the adjustment rating was .57; to the skill rating .51.

Therefore, we may conclude that the techniques employed in designing the present instruments to evaluate adjustment to blindness were satisfactory. The hypothesis that scientific procedures could be employed to design such instruments to evaluate adjustment to blindness is apparently substantiated.

Suggestions for Further Research

Certain suggestions for additional research are presented as an outgrowth of the present project. It would be valuable to collect data for a more extended period of time from the North Carolina center so that a greater number of cases could be available on which the validity of the adjustment scale could be computed. It might also be well to collect data from other centers, provided a substantial number could be collected to make a similar analysis from such centers to see if results would be achieved comparable to the analysis of the North Carolina data.

It would appear desirable, also, if a "before and after" study could be made in a center in which the scale would be administered upon admission and again at the time the training was terminated to determine if the training provided in the adjustment center actually resulted in a change of the individual's level of adjustment. Possibly even more effective would be the initiation of a project in which a follow-up study would be made at an appropriate interval after the client had left the center to determine the level of adjustment at that time, which would provide a practical validation of the adjustment scale.

We cannot presume that we have exhausted the problem areas encountered by individuals in making an adjustment to blindness. Additional research might be initiated in other areas which might contribute to the adjustment scale. Since the present project was initiated, it has been called to our attention by personnel in some of the training centers that the individual's outlook on his economic situation is an important one in his adjustment to blindness. One who is completely satisfied with a public assistance grant may find it difficult to accept the need for development of skills to permit him to be independent. Consideration might also be given to the problem of psychosexual adjustment, which appears to be an important one in many cases. In view of the findings in this project of the importance of the family relationship in evaluating adjustment, it would appear that this closely allied area might merit further investigation.

In view of the low reliability between judges' ratings with the use of the five-point scale, it would appear that additional study

might be made in an attempt to standardize the rating scale itself with the goal of increasing the reliability of this technique.

The fact that the present adjustment scale is composed predominantly of negatively-stated items may raise some question among those who will be concerned in using this material. It might be well to consider the possibility of expanding the present scale to include a group of positively-stated items as this might make it a more effective instrument.

The development of more effective techniques to evaluate the blind individual's competence in social adjustment should also prove to be a fruitful field of research. Although there are currently methods of evaluating social adjustment at various training centers, it would seem that this might well be done on a more scientific basis. Possibly individuals interested in the field of sociometrics would be able to help us in this particular area of investigation.

These suggestions are not intended to be all-inclusive but are merely some of the more prominent areas of investigation which come to mind as the outgrowth of the present attempt to develop techniques to evaluate adjustment to blindness.

Bibliography

1. American Foundation for the Blind. Adjustment training centers for the blind in the United States. *AFB Bulletin,* July 1950.
2. American Foundation for the Blind. *Adjustment centers for the blind:* Findings of the Spring Mill Conference. New York, 1951.
3. Barker, R. G., Wright, B. A., Meyerson, L., and Gonick, M. R. *Adjustment to physical handicap and illness: a survey of social psychology of physique and disability.* Social Science Research Council. New York, 1953.
4. Bauman, M. K. A comparative study of personality factors in blind, handicapped and non-handicapped individuals. Washington, D. C. Office of Vocational Rehabilitation, Federal Security Agency Rehabilitation Series 33: 134: A: 80, 1950.
5. ———. Diagnostic procedure in rehabilitation of the blind. *Journal of Rehabilitation,* vol. 18, 1952.
6. Blackburn, A. R. The army blind in the United States. Zahl, P. A., ed. *Blindness; modern approaches to the unseen environment.* Princeton, Princeton University Press, 1950.
7. Brown, P. A. A comparison of some personality traits among blind and non-blind high school students. Doctoral dissertation, University of Pittsburgh, 1937.
8. ———. Response of blind and seeing adolescents to an introversion-extroversion questionnaire. *Journal of Psychology,* vol. 11, 1938. p. 137-147.
9. ———. Response of blind and seeing adolescents to a neurotic inventory. *Journal of Psychology,* vol. 12, 1939. p. 211-221.
10. Chevigny, H. and Braverman, S. *The adjustment of the blind.* New Haven, Yale University Press, 1950.
11. Cutsforth, T. D. *The blind in school and society;* a psychological study. New York, American Foundation for the Blind, 1951.
12. Donahue, W. and Dabelstein, D. *Psychological diagnosis and counseling of the adult blind.* New York, American Foundation for the Blind, 1950.
13. Dunham, J. Rehabilitation center for adult blind. *Outlook for the Blind,* vol. 44, 1950. p. 24-26.
14. Federal Security Agency, Office of Vocational Rehabilitation. Adjustment and pre-vocational training of the blind. 33: 88: A: 53. Staff Development Aids No. 7, 1949.
15. ——— and American Foundation for the Blind. Case records of

eleven blind persons served by adjustment training centers in the United States: workshop on adjustment centers for the blind. Mitchell, Indiana, 1951.
16. ———. Reference material for workshop on adjustment centers for the blind: description of nine adjustment centers. Bulletin No. 5, 1951.
17. ———. Research suggestions on psychological problems associated with blindness. National Psychological Research Council for the Blind, 1951.
18. Fishman, S. Self-concept and adjustment to leg prosthesis. Doctoral dissertation, Columbia University, 1949.
19. Frampton, M. E. Rehabilitation procedures in the Navy, Marine Corps and Coast Guard. Zahl, P. A., ed. *Blindness; modern approaches to the unseen environment.* Princeton, Princeton University Press, 1950.
20. Fraser, I. The service war-blinded in Great Britain. Zahl, P. A., ed. *Blindness: modern approaches to the unseen environment.* Princeton, Princeton University Press, 1950.
21. Guilford, J. P. *Fundamental statistics in psychology and education.* New York, McGraw-Hill, 1950.
22. Hoover, R. E. The cane as a travel aid in blindness. Zahl, P. A., ed. *Blindness: modern approaches to the unseen environment.* Princeton, Princeton University Press, 1950.
23. Industrial Home for the Blind. Instruction in physical orientation and foot travel. New York, 1950.
24. Meyerson, L. The visually handicapped. *Review of Educational Research,* December, 1953.
25. Miller, E. Psychiatric aspects of rehabilitation. *Journal of the Royal Army Medical Corps,* February 1945. p. 54-65.
26. Morris, W. W. A state-wide program of psychological services for the blind. *Outlook for the Blind,* vol. 41, 1947. p. 144-145.
27. Muhl, A. M. Results of psychometric and personality studies of blind children at the California State School for the Blind. *Proceedings,* American Association of Instructors of the Blind, 1930.
28. Pearson, A. *Victory over blindness.* New York, Doran, 1919.
29. Pintner, R., Eisenson, J. and Stanton, M. *The psychology of the physically handicapped.* New York, Crofts, 1941.
30. Potter, S. C. The blind child: a challenge to education. Master's thesis, University of Minnesota, 1948.
31. Potts, P. C. Adjustment of the visually handicapped. *Journal of Exceptional Children,* vol. 11, 1944. p. 174-180.
32. Proctor, G. Factors contributing to adjustment as determined by eighteen cases studied in which adjustment was seen. Master's thesis, Wayne University, 1946.

33. Reeder, D. G. An analysis of the process of adjustment and the nature of experience consequent upon the loss of vision. Master's thesis, University of California, 1928.
34. Redkey, H. The Washington rehabilitation center. *Journal of Rehabilitation,* vol. 15, 1949. p. 14-19.
35. Rundquist, E. A. and Sletto, R. F. *Personality in the depression.* Minneapolis, University of Minnesota Press, 1936.
36. Sommers, V. S. *The influence of parental attitudes and social environment on the personality development of adolescent blind.* New York, American Foundation for the Blind, 1944.
37. Smith, L. F. The adjustment of the blind to industrial employment. Master's thesis, Washington University, St. Louis, Missouri, 1945.
38. Stalnaker, W. O. Romney diagnostic adjustment training center for adult blind. *Outlook for the Blind,* vol. 43, 1949. p. 31-35.
39. Thornton, S. Orientation and pre-vocational work tryouts for the Blind. *Outlook for the Blind,* vol. 44, 1950. p. 251-254.
40. Wittkower, E. and Davenport, R. C. The war blinded: their emotional, social and occupational situation. *Psychosomatic Medicine,* vol. 8, 1946. p. 121-137.

Appendices

APPENDIX I

Instructions Used in Administering the Adjustment Scale

Note: The following instructions should be used with groups who are to be tested by the use of the attitude scale. To provide uniformity, it should be read verbatim.

"This is a survey of opinions about matters concerning blind people. This is not a test. There are no right or wrong answers. The purpose of the survey is to find out how blind people in different circumstances respond to problems they frequently encounter.

"In front of you is a tray with three compartments. The center compartment has a pack of cards. There is one card for each statement in the survey. Each statement will be read twice so that you will have a better chance to understand it. If you agree with the statement, pick up the first card and place it in the right compartment; if you disagree with the statement, place it in the left compartment. Remember, place the card to the right if you agree or think it is right, and to the left if you disagree. Wait until the second reading before you place the card, but be sure and put every card in the right or left compartment, even if you feel uncertain about your decision. You need not be afraid of what others may think. Your opinion will be kept in strict confidence.

"Here is statement No. 1: 'In times like these, one is inclined to give up hope of getting ahead.' (Repeat No. and statement.) If you agree, place the top card in the right compartment; if you disagree, place it in the left compartment. Remember, there are no right or wrong answers. Your decision should express your opinion as honestly as you can give it. Are there any questions?

(INSTRUCTION AFTER EVERY SIXTH STATEMENT:)

"The next card should be a sheet of sandpaper. If so, pick it up and place it on the table at the back of your tray. If you do not find the sandpaper, please raise your hand. (If an error is discovered, it might be preferable to make a note identifying the group of cards in which the error occurred and ask the client to remain for a moment at the

end of the test to re-read the group of six statements in which the error occurred.)

"This is the next statement in the opinion survey.

(AT TERMINATION OF THE TEST:)

"The last statement was the final one. Please leave your cards as you have sorted them so your decisions can be recorded in written form. Do you have any questions or comments about the survey? We wish to thank you for your cooperation. Your opinion should be helpful to those concerned with training blind people to permit them to improve their services to future training. That's all. Thank you."

APPENDIX II

SURVEY OF OPINIONS RELATING TO PROBLEMS OF BLINDNESS

Training center.....
Client's name.....Weeks of training.....
Date of birth.....Sex: Male.....Female.....
Marital status: Single.....Married.....Divorced.....Widowed.....
Age at onset of blindness.....
Degree of vision: Light perception or less.....More than light perception.....
Attended school for blind: Yes.....No.....Grade completed in school.....
Home in rural area.....Town up to 5,000.....City over 5,000.....
Work experience as a blind person: Yes.....No.....Number of years.....
Kind of work.....
Are there other blind people in client's family? Yes.....No.....

SCORE SHEET

1.	D	15.	D	29.	D
2.	D	16.	D	30.	D
3.	D	17.	A	31.	D
4.	D	18.	D	32.	D
5.	D	19.	D	33.	A
6.	A	20.	D	34.	D
7.	D	21.	D	35.	D
8.	D	22.	D	36.	D
9.	D	23.	D	37.	A
10.	D	24.	D	38.	D
11.	A	25.	D	39.	D
12.	A	26.	A	40.	D
13.	D	27.	D	41.	A
14.	D	28.	D	42.	D

APPENDIX III (PART 1)

COMPARISON OF ORIGINAL ITEM ANALYSIS TO FINAL ITEM ANALYSIS

"M" (Morale) Sub-Scale

Old No.	*Diff. of %*	*t Ratio*	*New No.*	*Diff. of %*		*t Ratio*	
				White	*Negro*	*White*	*Negro*
55	48	3.71	1	48	62	3.81	4.53
19	20	1.47	7	27	75	1.93	6.94
31	24	1.75	13	61	69	5.21	5.94
37	13	.99	19	30	81	3.16	8.26
49	33	2.77	25	35	94	2.13	17.27
73	21	1.71	31	39	44	3.42	3.75
85	13	1.33	37	4	6		

APPENDIX III (PART 2)

COMPARISON OF ORIGINAL ITEM ANALYSIS TO FINAL ITEM ANALYSIS

"S" (Sighted) Sub-Scale

Old No.	*Diff. of %*	*t Ratio*	*New No.*	*Diff. of %*		*t Ratio*	
				White	*Negro*	*White*	*Negro*
8	9	.96	2	53	63	4.24	4.85
14	13	1.09	8	13	19	.93	1.94
20	52	4.33	14	52	63	4.13	5.20
38	35	2.69	20	48	63	3.90	5.20
44	16	1.42	26	13	00	1.24	
74	31	2.82	32	30	81	3.12	8.26
86	35	3.13	38	48	82	2.89	8.12

APPENDIX III (PART 3)
COMPARISON OF ORIGINAL ITEM ANALYSIS TO FINAL ITEM ANALYSIS
"B" (Blindness) Sub-Scale

Old No.	*Diff. of %*	*t Ratio*	*New No.*	*Diff. of %*		*t Ratio*	
				White	*Negro*	*White*	*Negro*
9	30	2.26	3	44	81	2.65	8.26
21	13	1.31	9	35	56	3.57	3.92
27	16	1.15	15	78	50	3.88	4.03
51	24	1.82	21	26	56	1.87	3.92
57	17	1.22	27	26	38	1.91	3.14
63	13	1.51	33	17	−12	1.12	
69	25	1.95	39	61	81	3.56	8.26

APPENDIX III (PART 4)
COMPARISON OF ORIGINAL ITEM ANALYSIS TO FINAL ITEM ANALYSIS
"F" (Family) Sub-Scale

Old No.	*Diff. of %*	*t Ratio*	*New No.*	*Diff. of %*		*t Ratio*	
				White	*Negro*	*White*	*Negro*
4	37	3.11	4	52	82	5.00	8.12
22	28	2.07	10	44	44	3.33	3.19
46	31	2.35	16	78	57	8.96	4.22
52	42	3.72	22	61	82	3.74	3.12
58	22	1.86	28	57	44	5.53	2.77
76	24	1.76	34	74	81	8.04	8.26
88	23	1.74	40	65	56	5.80	4.52

APPENDIX III (PART 5)

COMPARISON OF ORIGINAL ITEM ANALYSIS TO FINAL ITEM ANALYSIS
"T[illegible]aining, [illegible]-Scale

Old No.	*Diff. of %*	*t Ratio*	*New No.*	*Diff. of %*		*t Ratio*	
				White	*Negro*	*White*	*Negro*
5	13	.94	5	48	62	3.78	5.18
23	13	.99	11	−9	−25		
47	12	1.06	17	0	−12		
53	28	2.07	23	−10	13		1.55
65	17	1.29	29	35	75	2.69	6.52
71	12	.89	35	48	75	4.61	7.14
77	17	1.67	41	9	−12		

APPENDIX III (PART 6)

COMPARISON OF ORIGINAL ITEM ANALYSIS TO FINAL ITEM ANALYSIS
"O" (Occupational) Sub-Scale

Old No.	*Diff. of %*	*t Ratio*	*New No.*	*Diff. of %*		*t Ratio*	
				White	*Negro*	*White*	*Negro*
6	16	1.42	6	4	12	.32	1.06
18	25	2.55	12	9	0		
24	29	2.15	18	61	75	3.56	6.94
66	23	1.76	24	30	6	2.40	
72	18	1.42	30	48	75	4.63	6.52
78	28	2.12	36	52	88	5.00	10.86
90	20	1.52	42	57	88	5.53	10.86

Fitting, Edward A.
Evaluation of adjustment to blindness.